Service Quality of Traditional Chinese Medicine using Kano Model in Healthcare Customer Perspective

Palita Preechadechcharern

A Thesis Submitted in Partial Fulfillment of Requirements for
degree of Master of Business Administration in Marketing Management
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ABSTRACT

This study examines the influence of service quality on customer satisfaction within Traditional Chinese Medicine (TCM) healthcare services in Thailand. Employing HEALTHQUAL service quality framework (empathy, tangibles, safety, efficiency, and care improvement) and the Kano model for attribute categorization and prioritization, addressing the need for continuous improvement in the highly competitive healthcare sector.

The research assesses TCM service quality from the perspective of healthcare customers in Thailand, with a focus on satisfaction across varying demographics. Through a quantitative approach, data were collected from 394 TCM customers in Thailand via an online questionnaire. Statistical analyses, including t-tests and ANOVA, were conducted to compare satisfaction across demographic groups, revealing key differences in service quality perception. The Kano model was used to categorize service attributes, with further validation achieved through the A-Kano graph.

The results indicate that TCM customers report high satisfaction on both overall and individual aspects of service quality, highlight that safety, and empathy are pivotal in shaping customer satisfaction. Analysis across 1) demographic groups revealed that perceptions of service quality vary by age and educational background, with younger customers and those with higher education levels reporting lower satisfaction compared to other groups. Gender and income level, however, do not significantly influence perceived service quality. 2) Customer behaviors, customers who visited private clinics reported a lower perception of service quality than those using other healthcare settings. Additionally, the purpose of service usage did not show any significant differences in service quality perception. 3) The Kano model, all the twenty attributes fell into one-dimensional category.

Using the Kano model, all TCM service attributes were classified as one-

dimensional, indicating linear relationships between attribute performance and customer satisfaction. Politeness and advanced medical equipment were critical drivers of satisfaction, with the CSI value exceeding 1, highlighting the need for ethical communication and technological integration into the service, prioritizing these attributes is essential to sustain high levels of customer satisfaction and mitigate potential dissatisfaction risks.

In conclusion, despite varying individual demographics, TCM customers primarily focus on achieving health outcomes. Other factors, such as service quality, are perceived subjectively, with overall satisfaction heavily influenced by personal perceptions. These findings offer valuable insights for the literature and provide practical recommendations for TCM stakeholders in Thailand, emphasizing key areas that impact customer satisfaction and can enhance service quality within TCM practices.

Keyword : Service Quality, Customer Satisfaction, Kano Model, Traditional Chinese Medicine, Healthcare

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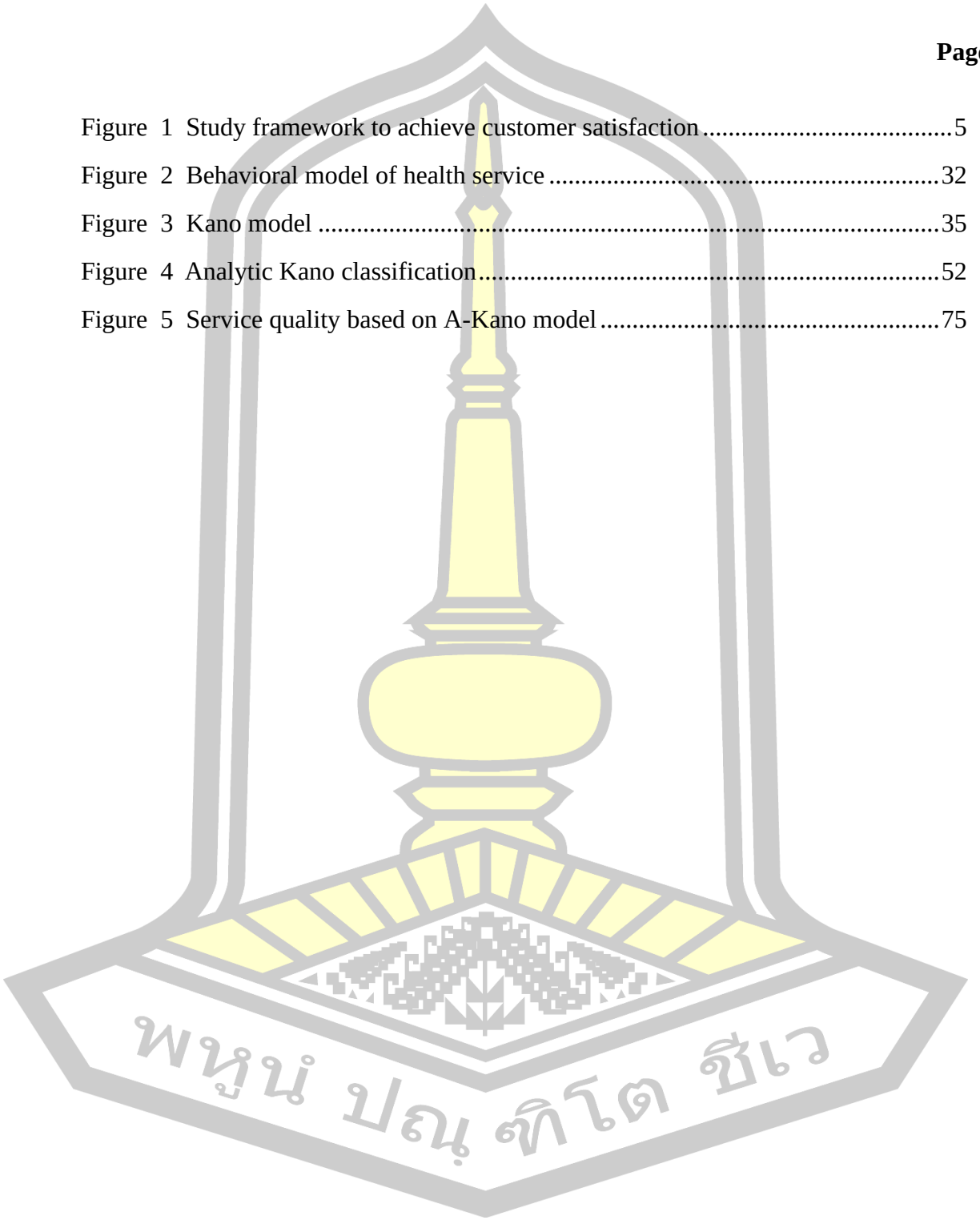


CHAPTER I

INTRODUCTION

Background

Traditional Chinese medicine (TCM) is an ancient philosophical-based medical practice rooted in Chinese culture. The outstanding advantage is to restore the balance in the body, maintain health and well-being without the use of chemicals, and focused on the harmony between man and nature (Ma et al. , 2021). The World Health Organization (WHO) has formally recognized TCM as an alternative healthcare system, establishing global standards and guidelines for practice (WHO, 2022). As TCM gained wider acceptance globally, including in Thailand, which is increasingly integrated into mainstream healthcare systems as Complementary and Alternative Medicine (CAM). Many medical providers now incorporate TCM into the treatment plans, either independently or as part of integrative medicine, reflecting the growing interest and utility.

The increasing demand for TCM is evident worldwide. For instance, in China, the number of TCM treatment visits has increased by 2.41 times over the past decade, reflecting growing acceptance despite persistent criticisms concerning scientific validation and safety (Guo et al. , 2022). Similarly, in Thailand, the TCM market has expanded significantly. According to the Thailand Health Data Center (HDC), the number of TCM visits rose sharply from approximately 220,778 in 2020 to 406,588 in 2023, driven by rising consumer demand for natural and alternative therapies (HDC, 2023). This growth is further supported by the increasing acceptance of TCM among both urban and rural populations, who seek long-term and holistic healthcare solutions. Societal shifts, including an aging population, urbanization, and the expanding middle class, have also contributed to the rising prevalence of chronic health concerns that are effectively addressed by TCM. Furthermore, TCM emphasis on continuous care and follow-up enhances patient engagement, increasing the frequency of visits and promoting better health outcomes. These trends highlight the substantial opportunities for the global expansion of TCM services.

Despite TCM growing popularity, skepticism remains due to concerns over the efficacy and lack of alignment with modern scientific standards. While substantial evidence-based research supports the therapeutic benefits of TCM (Ulett et al. , 1998; Zeng et al. , 2014), challenges persist regarding to the integration into scientific frameworks. Issues related to efficacy and safety are pressing concerns, as innovation and technological advancements raise the standards of healthcare quality (Xu and Xia, 2019). Inadequate follow-up care, a critical component of TCM, can lead to patient dissatisfaction, affecting both the perceived quality of care and the likelihood of continued visits. Thus, addressing these concerns is crucial for maintaining patient trust and satisfaction as TCM continues to adapts to evolving healthcare standards and patient expectations.

Service quality is a crucial factor in the healthcare sector, as it directly impacts customer satisfaction. Service quality is typically evaluated based on how effectively the service match or surpass customer expectations (Parasuraman et al. , 1985). However, the subjective nature of service quality makes it difficult to measure consistently across different healthcare settings (Cronin and Taylor, 1992). Lee (2017) HEALTHQUAL model provides a useful framework for evaluating service quality in healthcare, focusing on aspects like empathy, tangible, safety, efficiency, and improvement in care service. In healthcare, service quality directly influence customer satisfaction and contributes to positive customer experiences and long-term trust (Chang et al. , 2013; Hwang and Sim, 2016). Customer typically evaluate the service process rather than outcomes, which may find difficult to assess without a deeper understanding of medical treatment (Edura Wan Rashid and Kamaruzaman Jusoff, 2009). Hence, customers who feel supported, understood, and well-cared for are more likely to adhere to treatment plans and become advocate (Pun et al. , 2019).

Customer satisfaction is driven by emotions, pivotal in determining the quality of healthcare service. Positive or negative feelings arise from comparing the actual service performance with customer expectations. As organizations attempt to meet customer needs, customer satisfaction becomes an important indicator to evaluate service quality and ensure long-term profitability (Boadi et al. , 2019). In the healthcare context, satisfied customers are more likely to revisit and form long-term

relationships with the provider, enhancing continuity of care (Woo and Choi, 2021). Previous research has highlighted a positive relationship between customer satisfaction and healthcare service quality, often based on the SERVQUAL model (Asif et al. , 2019). Moreover, recent studies emphasize the importance of customer opinions in shaping service delivery, underlining that healthcare organizations must prioritize service quality to meet or exceed customer expectations (Manzoor et al. , 2019).

The Kano model of customer satisfaction is a valuable tool for understanding customer needs and expectations in both product and service development. The model has been applied across various industries, including hospitality (Andriani et al. , 2021), financial services (Budiarani et al. , 2021), hunting tourism (Żywiołek et al. , 2023), and education (Nurjannah et al. , 2020). In healthcare, the Kano model offers a systematic approach to evaluate service quality and identify service attributes that directly influence customer satisfaction. According to the Kano model, service attributes can be classified into five categories: must-be, attractive, one-dimensional, indifferent, and reverse (Kano et al. , 1984). Each attribute within a healthcare service, including those in TCM, may hold a different level of importance based on its impact on customer satisfaction. Several studies have integrated the Kano and other methodologies (Jin et al. , 2022; Neto et al. , 2023; Tseng, 2020), which increase the accuracy of the existing Kano technique. Whereas, many studies prefer the classic Kano procedure due to its convenience of use and understanding (Barrios-Ipenza et al. , 2021; Chen et al. , 2021; Suh et al. , 2019).

Although the Kano model has been widely applied to assess service quality and customer satisfaction across various industries, its application to TCM in Thailand remains underexplored. Most existing studies focus on regions such as Taiwan (Wang and Hsin-Hao, 2018) and China (Liao et al. , 2023), leaving a significant gap in research on how TCM services in Thailand can be assessed using the Kano model. By applying the Kano model in combination with the HEALTHQUAL approach, stakeholders in Thailand TCM sector can better understand how different service attributes impact customer satisfaction. This will

allow for more informed decision-making and prioritization of service improvements without overengineering the service offering.

Research Objectives

1. To investigate the service quality of TCM.

2. To determine the service quality of TCM across different demographic factors, including genders, ages, educational level, income, and types of hospital visited.

3. To investigate customer satisfaction with TCM by using Kano model to assess the importance and satisfaction of various service attributes.

4. To identify and categorize the attributes of TCM services into different Kano model categories.

Significance of the Study

1. To provide information for researchers and scholars in marketing management to understand the relationship between service quality and customer satisfaction regarding traditional Chinese medicine.

2. To provide guidelines for policymakers and executives in strategic planning to enhance customer satisfaction by developing the service quality of traditional Chinese medicine.

3. To provide guidelines for practitioners and staff in improving the practice of traditional Chinese medicine service.

Study Framework

The study framework was organized into two steps as following:

1. Service quality was adopted from the concept of HEALTHQUAL model by Lee (2017) consists of

1.1 Empathy

1.2 Tangible

1.3 Safety

1.4 Efficiency

1.5 Improvement in care service

2. Customer satisfaction was compared with Kano Model and then calculated as a customer satisfaction index (Matzler and others 1996)

2.1 Satisfaction Index

2.2 Dissatisfaction Index

The proposed research framework used HEALTHQUAL multidimensional scale to evaluate service quality of the TCM. The Kano questionnaire and evaluation table were used to obtain satisfaction features based on customer's requirement, and all the preferences were prioritized with the Kano model.

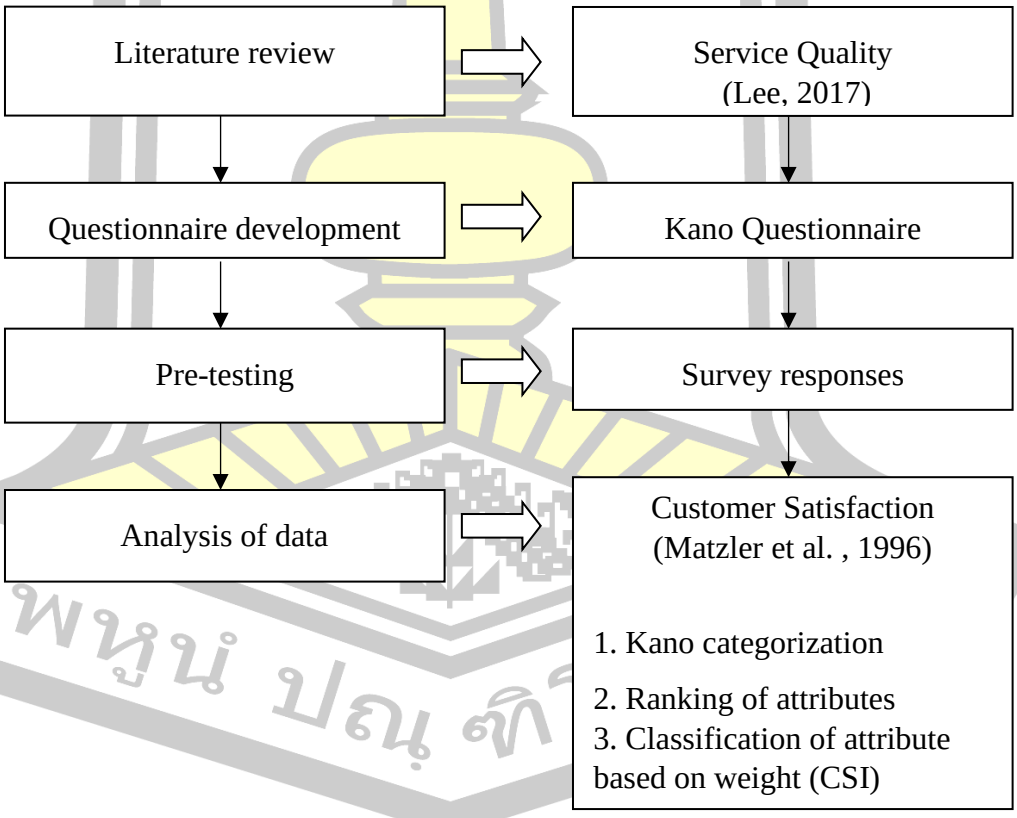


Figure 1 Study framework to achieve customer satisfaction

Scope of Study

1. Population sample

1.1 Population in this study was TCM customers in Thailand.

1.2 Sample in this study was a TCM customers in Thailand who had visited TCM service within one year.

2. Areas of study were the TCM in public hospitals, private hospitals, and private clinics in Thailand.

3. The data was gathered within a one-month period between 1 April - 30 April 2024.

4. Variables used in this study

To determine the service quality of traditional Chinese medicine in Thailand.

The independent variable refers to service quality dimensions: empathy, tangible, safety, efficiency, and improvement in care service.

The dependent variable refers to customer satisfaction.

Research Hypotheses

1. Demographic factors such as gender, age, educational level, income level perceives service quality of TCM of differently.

2. Customer behavior such as types of hospital visited, and purpose of service usage perceive service quality of TCM differently.

3. Based on Kano model categories, TCM customers prioritize service quality differently.

Definitions

1. Traditional Chinese Medicine refers to an alternative medical practice originates from China, focuses on the balance of the body, encompassing well-known practices such as acupuncture, herbal medicine, and cupping.

2. TCM Customer refers to individuals seeking TCM healthcare services. Including patients with a medical condition seeking treatment as well as individuals who are not currently unwell but obtain services for other reasons, such as aesthetics, body balance and wellbeing. Thus, in this research use the term customer instead of patient.

3. Practitioner refers to those who have graduated from traditional Chinese medicine according to the 5-year curriculum and have passed the professional exam, registered and licensed as a practitioner by the Professional Commission.

4. Service Quality refers to delivering a service in accordance with organizational standards guidelines and other subjective elements that contribute to a positive customer experience and perception of service.

4.1 Empathy refers to the attitude of healthcare staff during service towards patients with the same emotion as an indicator of personal interests in individual patients.

4.2 Tangible refers to the appearance of the physical environment and equipment needed to provide a proper care service.

4.3 Safety refers to the condition of ensuring the well-being and safe environment for both healthcare provider and customer.

4.4 Efficiency refers to the activity that facilitates operations and procedures to deliver a more convenient service.

4.5 Improvement in Care Service refers to the activity that support and promote a change of symptoms in a better condition as a goal of healthcare service.

5. Customer Satisfaction refers to emotion and feelings can be either positive or negative resulting from comparing a service performance with the expectations.

6. Customer Satisfaction Index refers to a metric used to assess the overall satisfaction of customer with specific service attributes, integrating the weight and impact of each attribute on satisfaction and dissatisfaction.

7. Satisfaction Index refers to a metric used to measure how much the attribute of service causes customer satisfaction when the attribute is present or performed well.

8. Dissatisfaction Index refers to a metric used to measure how much the attribute of service causes dissatisfaction when the attribute is absent or poor performance.

9. Kano Model refer to the theory that prioritize and develop customer satisfaction by understanding customer requirement, and categorized in to five categories

9.1 Attractive category refers to attributes that exceed customer's expectation, leading to delight, and customer are willing to pay a higher price for it. Service differentiation can be gain by high level of performance of the one-dimensional attribute.

9.2 One-Dimensional category refers to attributes that are directly correlated to customer satisfaction. Improve service performance leads to higher customer satisfaction. Whereas, poor service performance results in greater dissatisfaction.

9.3 Must-Be category refers to attributes that should be presented in the service, customers are expected to meet these attributes and take them for granted. No matter how service improved, customers are still neutral.

9.4 Indifferent category refers to attributes that have little or no effect on customer satisfaction. The presence or absence of these attributes, neither increase satisfaction nor cause dissatisfaction.

9.5 Reverse category refers to attributes that are not needed or need to be improved. The presence of these attributes leads to lower satisfaction, or cause dissatisfaction.

CHAPTER II

LITERATURE REVIEW

This chapter reviews the literature related to the research study. There are four main sections in this chapter.

1. General Information of Traditional Chinese Medicine
2. Concepts of Service Quality
3. Concepts of Customer Satisfaction
4. Related Literature

General Information of Traditional Chinese Medicine

Traditional Chinese medicine is a professional service with a comprehensive conceptual approach that believes in the harmony between man and nature. Focusing on prevention before an invasive illness and treating illnesses by restoring a body back to a state of balance. The practitioner develops a personalized treatment plan, with utilized single or various type of treatment methods.

1. Definition of Traditional Chinese Medicine

Australian Acupuncture and Chinese Medicine Association (2024) implied TCM as a holistic healthcare approach with thousands of years of background, emphasized on maintaining and restoring balance, harmony of the body with a focus on prevention and treatment.

Matos and others (2021) define TCM as a systematic healthcare system derived from extensive clinical experience and guided by a scientific framework of regulation. TCM utilizes unique theories and techniques to treat ailments and promote overall well-being.

Healing Art Practice Act (2013) gives a definition on TCM as an act or intended to conduct a medical examination, diagnosis, therapy, disease prevention,

health promotion, and restoration of health against human being by applying TCM knowledge.

Xu and others (2013) define TCM as a holistic medical system that has been rooted in Asian cultures for centuries. Including the diagnosis, prevention, and treatment of diseases through experience-based therapies guided by an extensive theoretical framework.

Xie and Leung (2009) define TCM as a medical system based on thousands of years of human observations. Comprising a variety of techniques, such as acupuncture, moxibustion, and Chinese herbal medicines.

Unschuld (1987) defines TCM as a holistic healthcare system that upholds diverse cognitive patterns while maintaining a conceptual foundation like pulse diagnosis and disease treatment.

In conclusion, traditional Chinese medicine refers to the application of ancient medical knowledge and theories gathered throughout time to provide a therapy to prevent, maintain, and promote health and wellness by using techniques such as herbal medicine, acupuncture, cupping, and massage.

2. Background of Traditional Chinese Medicine in Thailand

Traditional Chinese medicine has a documented history spanning over 2,000 years. It gained popularity in Western countries approximately 50 years ago after a New York Times reporter received acupuncture treatment while in China (Lu and Lu, 2013). TCM is renowned for prevention and ability to treat a wide spectrum of acute and chronic illnesses. A knowledge system drawn from practical experience in the struggle to survive among nature and the illnesses that encroach on mankind, combined with knowledge of ancient philosophy, social science, and the sciences, gradually forms a TCM theory that guides in actual treatment. The clinical experience has been used to complement and develop the theory of TCM continuously, passing on knowledge from generation to generation, until it becomes a basic theory that is followed as a norm in practice.

Traditional Chinese medicine has entered Thailand through the migration of Chinese people since the Sukhothai period. Later, in the Ayutthaya period, the

book of Osot Phra Narai was written, which compiled the medicinal formulae used at the time, and the Chinese pharmacopoeia was discovered in the book. Emphasize that Chinese medicine has been used along with Thai traditional medicine for the treatment of Thai people since ancient times. In the Rattanakosin period, there was an increased in Chinese migration to Thailand. During the reign of King Rama V in 1903, Tian Fah Foundation Hospital was established, which was the first hospital to provide TCM services. Later, there was a gathering of TCM practitioners to form an association.

In 1999, TCM has been classified as a knowledge from abroad that is permitted to practice medicine in Thailand. According to the Healing Arts Practices Act 1999, section 31, a person who has pass down knowledge through ancestors or graduated from university accredited by Professional Committee, must complete a knowledge assessment and be temporarily permitted to practice medicine as a TCM practitioner. Later, in 2009, the Professional Committee on TCM enacted that TCM practitioners must obtain a bachelor degree or certificate equivalent to a degree in TCM from an educational institution accredited by the Professional Committee on TCM exclusively (Department of Health Service Support, 2014). Currently, these legal frameworks have established TCM as a recognized and professionally regulated discipline in Thailand. The requirement for practitioners to hold accredited qualifications ensures that TCM services meet consistent standards of quality and safety. This organized approach has resulted in a steady rise of qualified TCM practitioners, providing Thai customers with more reliable access to TCM.

3. Concept of Traditional Chinese Medicine

Traditional Chinese medicine is a branch of medical science with a distinctive theoretical system. There are two main principal concepts of TCM, as follows (Khamphiraphap, 2015)

(1) Holistic Concept

Traditional Chinese medicine emphasizes the holistic unity of the body in harmony between man and nature. The human body is made up of many units of cells, tissues, and organs that are working together in terms of function, cannot be separated and must be harmonic and interdependent. When diseases emerge, they

also have an impact on one another. In addition, TCM views the body and mind as one. Therefore, the treatment must also pay attention to the mental state of the patient.

(2) Treatment according to disease classification

Disease classification is a unique characteristic of TCM in which treatment is offered depending on the clinically stated symptoms. Diseases are classified based on information obtained from a physical examination, followed by specific treatment guidelines. Consequently, patients with a different disease may receive similar treatment, while patients with the same disease may receive a different treatment and medication. Unlike western medicine, which typically administer treatment based solely on disease, TCM employs a holistic approach to treatment.

4. Practices on Traditional Chinese Medicine

4.1 Diagnosis Metho

The practitioner diagnoses patients by assessing their overall health and specific symptoms, seeking to identify and correct imbalances in the body through four methods below (Wang, 2002)

(1) Observation: Observe the patient's complexion, lips, excrement, and skin condition to judge and diagnose diseases. This includes details such as paleness, redness, dryness, or excess moisture. In particular important, the tongue is an essential diagnostic tool, with its color, coating, shape, movement, and other features offering information on the state of the internal organs.

(2) Listening and smelling: Listen to the patient's voice, such as coughing, voice strength, breathing sounds, and the particular odors associated with the patient's breath, to identify the internal condition.

(3) Inquiring: A series of inquiries concerning the patient's symptoms, medical history, emotions, lifestyle, and dietary habits. This information helps in identifying patterns of disharmony and the underlying causes of the patient's condition.

(4) Palpation: The highlight of the TCM diagnostic approach is pulse diagnosis, which includes feeling the quality and strength of the pulse at various

points on both wrists. The different pulse qualities are associated with specific organs and imbalances.

4.2 Treatment Method

The objective of TCM treatment is to restore balance and harmony inside the body, determined by the patient's individual diagnosis and classification of disease. The practitioner will tailor a treatment plan using either single or combined methods to address various aspects of a patient's health. These following methods were widely practiced clinically

(1) Acupuncture is commonly used in worldwide as a therapy technique to treat pain, tension, inflammation, stress, insomnia, anxiety, and a variety of medical ailments, by inserted a thin aseptic needle into a certain area point on the body to stimulate the flow of energy and restore balance. Acupuncture employs a range of methods which vary depending on the skills and technique of practitioner (Langevin et al. , 2011).

(2) Cupping therapy is a technique in which a practitioner places a specific shape of cup on a body for a few minutes, by set fire to create negative pressure suction. Cupping helps to reduce pain and inflammation, enhance body comfort and relaxation, changes in local tissue structures and increase in blood circulation (Al-Bedah et al. , 2019).

(3) Tuina commonly known as Chinese medical massage, is an ancient form of various hands-on manipulation treatments based on TCM theory. Tuina therapy is used for giving special treatments to people of all ages, from infancy to old age. The muscles and tendons are massaged majorly with hands and combined with the acupressure technique to facilitate the healing process. This made Tuina different from other massages.

(4) Chinese herbs are the most significant aspect of TCM treatment, despite being less widely recognized in Western countries. The use of medicinal herbs, minerals, and animal products to treat a variety of health issues and enhance general well-being. These herbal products can be used in single-type or combinations

to create a balanced and synergistic effect. Also, can be prescribed individually for each patient depending on the symptom and disease classification.

(5) Moxibustion is a therapy that entails the burning of an herb called mug wort to give warmth on particular area or meridian pathway. The technique is applied differently depending on the symptom. The moxa can directly place on the skin or indirectly by using a layer of garlic or ginger to increase the effect of the treatment.

(6) Gua sha is a method employed in both self-cultivation and clinical practice, targeting recurring fixed pain and health enhancement through the application of a smooth-edged tool such as a coin, animal horn, jade, or stone scratch on the skin with appropriate hand weight. The appearance of redness and ecchymosis on skin results from extravasated blood during the procedure typically diminish over several days (Nielsen, 2008).

Traditional Chinese medicine treatment methods often required patients to continually visit for a variety of reasons. As treatment progresses, the disharmony patterns in the body might change. As the body rebalance, a previously classified pattern may shift to another. Follow-up visits enable practitioners to identify these changes and adjust therapy accordingly (Ma and others 2021). Thus, customers may evaluate the quality of TCM differently based on several interconnected factors, such as the skill of practitioner, the effectiveness of treatments, personal health goals, and affordability, which lead to their satisfaction and revisiting.

5. Standards on Traditional Chinese Medicine

The World Health Organization has formulated a strategy to evaluate and regulate the utilization of traditional medicine by promoting credible evidence on the safety, efficacy, and quality of treatments in order to ensure quality services are available at affordable pricing. The TCM Professional Committee has set practical requirements to ensure credibility and acceptability of TCM services as two aspects (Department of Thai Traditional and Alternative Medicine, 2022).

(1) Structural standards in TCM administration and service systems encompass the identification and evaluation of various element such as medical

equipment, facilities, service spaces, and emergency response protocol. These standards must consider the effectiveness of healthcare delivery in facilitating optimal outcomes for healthcare customers, particularly in ensuring the attainment of high-quality service provision.

(2) Practice standards in TCM encompass the assessment of practitioners' knowledge and capability in providing care. This evaluation extends to the implementation of appropriate treatment following the identification of health issues, utilizing foundational theories such as Yin-Yang analysis, the five elements, and the four diagnostic procedures. Additionally, these standards evaluate practitioners' abilities to collaborate, communicate, establish positive rapport with patients and their families, and effectively transmit professional TCM knowledge.

6. Market Situation and Customer Behavior of TCM in Thailand

In 2022, the global wellness economy expanded to USD 5.6 trillion, with traditional and complementary medicine comprising USD 519 billion, according to the Global Wellness Institute (GWI, 2023). Specifically, the global market size for TCM, which includes the production, distribution and consumption of services, amounted to USD 216 billion and is expected to reach USD 322 billion by 2028 (Business Research Insights, 2024).

The growing inclination toward health-conscious behavior, particularly in the post-Covid-19 era, combined with rising concern of western medicine, has fostered a significant interest in healthcare and personal well-being. Furthermore, the dissatisfaction with the limitations and issues of conventional medicine, such as over-reliance on drugs and surgery, and the neglect of emotional and environmental factors. This dissatisfaction has led to increased awareness and preference for a natural product and holistic health care approaches that address body, mind, and environment (Wungrath, 2021). TCM offers an alternative by reducing adverse side effects, providing a safer treatment, and offering personalized care tailored to each individual.

Another key factor driving the growth of TCM market in Thailand is the government supportive policies for development and promotion of alternative healthcare. An example is the Medical Hub’s policy, which positions the country as a

global leader in medical and wellness tourism. Thailand is renowned as one of the most famous medical and wellness tourism destinations in the world, attracting approximately 1.2 million wellness tourists and generating annually revenue totaling 409 billion Thai baht annually (Bangkok Bank, 2022). The two main purposes of wellness tourism are for receive medical treatment and another is rehabilitation (Polkuamdee, 2024). Additionally, apart from the tourists from Middle East, visitors from neighboring countries, such as Myanmar, Cambodia, Bangladesh who have the financial capability also seeking for short distance trip for medical treatment in Thailand. This trend is largely driven by the availability modern medical equipment, sufficient staff, and reliability of healthcare providers which enhance the appeal of combining TCM with conventional treatments (Polkuamdee, 2024).

Thai government legalized TCM in 2000, and introduced a 3-month short-term acupuncture training course for physicians, led to an increase in educational initiatives aimed at enhancing the understanding and acceptance of TCM among both healthcare professionals and the general public. The available data, as of September 2023, indicates that there are 1,943 licensed TCM practitioners and 2,202 physicians have completed training course in Thailand (Department of Health Service Support, 2023a). This growing trained professional has contributed to the wider accessibility of TCM services, which are available across three types of hospital, as private hospital, public hospitals, as well as private clinics, with a total of 621 operational TCM clinics reported (Department of Health Service Support, 2023b). The increased accessibility of TCM services, coupled with a customer behavior trend that focuses more on physical and mental health (Statista Search Department, 2023). The recommendations by healthcare professionals for alternative treatments and the spread of TCM related health information online, collectively contributes to the raising of awareness and acceptance, further promoting the integration of TCM as complementary option alongside conventional medicine.

Healthcare utilization varies based on customer demographic characteristics, health condition, care provider characteristic, cost, and availability (Hulka and Wheat, 1985). Individuals experiencing illness often seek treatment and rehabilitation for pain management, particularly in cases of occupational-related

diseases such as migraine and office syndrome. Additionally, elderly may turn to TCM to balance their body and manage chronic diseases like hypertension and musculoskeletal pain, while middle-aged individuals often use TCM for preventive healthcare and to manage stress-related conditions such as anxiety and depression. Furthermore, wellness enthusiasts, particularly adults, seek TCM for holistic wellness approach, which emphasizes personalized and non-invasive treatments such as acupuncture and herbal medicine that address both physical and mental well-being (Burke et al. , 2011; Chowdhuri and Kundu, 2020). Ultimately, there are different purposes of TCM service usage across various customer groups, reflecting the broad spectrum of needs and preferences among different demographic.

In summary, TCM has gained widespread popularity as an alternative healthcare approach that emphasize non-chemicals treatment. The diverse range of treatment techniques, extensive accumulated experience, and various of theory applied make a difference in practice. The service quality of TCM is influenced by several factors, including the skills of practitioner, individual customer circumstances, and the clinical environment. Thus, the development of service quality that responds to customer requirements could increase customer satisfaction.

Concepts of Service Quality

Service quality is a critical instrument in business management. Developing service quality is a widespread business tactic as customer needs and expectations rise. Customers have different difficulties when assessing the quality of services compared to when evaluating the quality of commodities. Hence, service quality has been widely studied for decades. The reviews of service quality literature are as follows:

1. Definition of Service Quality

Bungatang and Reynel (2021) defined service quality as the assessment of economic activity that result in intangible services rather than physical goods.

Mosadeghrad (2014) defined service quality in healthcare as the result of patient and practitioner collaboration in a supportive environment.

Mohammad Mosadeghrad (2013) defined service quality as a consistently providing effective and efficient services that fit with clinical guidelines, to fulfill customer expectations, and pleasure both providers and customers.

Prakash and Mohanty (2013) defined service quality as customer's perception that received services exceeds their anticipated level, where anticipation represents the expected standard of service that customers aspire to experience, and actual service delivery aligns with or exceeds these expectations.

Aagja and Garg (2010) defined service quality in healthcare as the disparity between a patient's perceptions of services provided by a particular hospital and their expectations of hospitals providing such services.

Pantouvakis (2010) defined service quality as the customer's sense of service excellence.

Øvretveit (2009) defined service quality as providing treatment that surpasses patient expectations and provides the finest clinical results possible with the available resources.

Schuster and others (2005) defined high service quality of healthcare as providing patients with appropriate services in a technically competent manner with good communication through shared decision-making and cultural sensitivity.

Zeithaml (2000) defined as the perceived of excellence or effectiveness services that offered by firm, including positive and negative aspects of customer experiences. This perception is influenced by various marketing variables.

Ghobadian and others (1994) defined as the amount of excellence and satisfaction experienced by customers while interacting with services firm. Excellent service quality is fundamental to improving profitability.

Parasuraman and others (1985) defined service quality as the evaluation and perception of the quality of service by customers based on expectation and actual service.

Grönroos (1984) defined as the result of a customer's perception on what and how services provided, compared with the overall perceived service quality and the customer's expectations.

Donabedian (1980) defined healthcare service quality as the application of medical approaches and technology in a way that optimizes health benefits while minimizing illness without correspondingly increasing the risk.

In conclusion, service quality could be defined as providing an effective service in accordance with the best practice guidelines with a customer-centric approach and incorporating non-technical elements such as understanding, communication, and environment throughout the service to meet or exceed customer expectations. In healthcare sector, service is distinct from other industries due to its high level of intangibility, making it difficult to measure service quality. Customers may find it difficult to assess the quality of healthcare service, even after received a service. Consequently, many researchers have given a definition of service quality in the healthcare industry that appeared to be similar to the quality of healthcare services since it was primarily given from the care provider point of view.

2. Importance of Service Quality

Dam and Dam (2021) service quality contributes to a favorable brand image, customer satisfaction, and customer loyalty, which leads to reputation enhancement and repeat purchase.

Tuncer and others (2021) service quality has a favorable influence on customer satisfaction, whereas customer satisfaction and perceived value have a positive effect on customers' behavioral intentions as a recommendation, repeat purchase, and positive word of mouth.

Elizar and others (2020) service quality can build customer trust, which significantly mediates the effect of service quality on customer loyalty. That increases the revisit rate and reduces customer turnover.

Kasiri and others (2017) state that service quality standardization affects customer satisfaction, which leads to customer loyalty and enhances the possibility of repeat business.

Wijetunge (2016) state that service quality helps businesses retain and attract customers by fulfilling their expectations. Gaining a competitive advantage and improving corporate performance.

Park (2005) state that the service quality, such as facilities and environment, staff kindness, and convenience of the utilization process, leads to the intention to revisit and recommend the service to others, therefore contributing to positive word-of-mouth.

In conclusion, service quality is significant in various aspects of business and critical for every organization's sustainable growth. A provision of excellence in service quality can enhance customer satisfaction, which leads to further competitive advantage. Whereas poor service quality could result in the opposite outcome, such as a negative WOM, a bad organization image, and an increasing customer churn rate. Moreover, an organization would have to expend more resources on marketing expenses to make new customer and maintain repeat customers.

3. Dimension of Service Quality

Service quality has no exact dimension; as it depends on several factors related to service and intention of the researcher. Some researchers have defined service quality in global terms, such as technical quality and functional quality (Grönroos, 1984). Others have used characteristic terms to define service quality such as empathy, reliability, assurance (Parasuraman et al. , 1990).

Nemati et al. (2020) divided service quality in healthcare with five dimensions below

(1) Environment refer to physical facilities, equipment, and building.

(2) Empathy refers to the interactions between providers and customers in a manner.

(3) Efficiency refers to optimal use of resources, timeliness, cost-outcome, and costs-value ratio

(4) Effectiveness refers to outcomes that meet the customer’s expected health goal.

(5) Efficacy refers to how care providers could achieve their goals.

Lee (2017) proposed a model named HEALTHQUAL which developed from the service quality models and reclassification of evaluation items of international healthcare accreditation institutions. The model composed of five dimensions, as follow

(1) Empathy refers to staff attitude and emotion towards customer during treatment. Recognizing and acknowledging the emotions and needs of customers and responding in a way that shows care and understanding.

(2) Tangible refers to the use of modern medical equipment, available of technology, and physical environment.

(3) Safety refers to provide a comfortable and safe environment to staff and customer. A reliability of staff that is a personnel certification, knowledge and skills, and confidence in providing services.

(4) Efficiency is a supporting activity that offers more convenient service. Utilizing the optimal available resource to deliver an effective service, such as reducing time, accessibility, and convenience.

(5) Improvement in care service refers to activities in which medical staff and patients work together to enhance the outcomes of care, such as illness prevention and continuous improvement of care treatment. Communication with the patient, suitable care treatment, and the patient's effort to follow staff advice to achieve the medical service goal.

Aagja and Garg (2010) proposed a model specific to measuring perceived service quality for public hospital, namely PubHosQual, composed of five dimensions as follows

(1) Admission refers to the promptness of admission, such as ambulance service, courtesy, and politeness of staff.

(2) Medical service refers to professional skills and knowledge of healthcare staffs.

(3) Overall service refers to the overall facilities, cleanliness, environment of the hospital.

(4) Discharge process refers to clarifying the discharge plan and providing needed information for patients.

(5) Social Responsibility refers to the provision of equality of service to all at a reasonable cost.

Roshnee Ramsaran - Fowdar (2008) proposed a service quality model specific to measuring private hospital, namely PRIVHEALTHQUAL which composed of seven dimensions. The model was modifying of SERVQUAL model by bundling some dimensions together, like assurance and empathy, then added three new dimensions

(1) Core medical services/professionalism/skill/competence refers to the medical factors such as the appropriateness, effectiveness and benefit to the patient as well as the knowledge, technical expertise, and experience.

(2) Equipment and records refer to physical medical equipment as well as reliable medical history records.

(3) Information dissemination refers to the providing of information by physicians such as explanation of medical condition and treatment.

Lim and Tang (2000) studied follow SERVQUAL five dimensions, and added one dimension, named, accessibility and affordability which focused specifically on location and parking facilities.

Lee et al. (2000) extended another two dimensions from SERVQUAL service quality model, by included the technical quality of the practitioner, as

(1) Core medical service refers to the appropriateness and effectiveness of medical service.

(2) Professionalism/skill refers to the knowledge, skill, and amount of training of care provider.

Parasuraman et al. (1990) proposed a SERVQUAL framework for determining and evaluating the quality of services verified in various industry both online and offline. This approach is intended to assist provider in identifying and understanding the gaps between customer expectations and perceptions of service quality. Consists of five dimensions below

(1) Tangibles is the physical and appearance of service, such as the cleanliness and modernity of facilities, the professionalism and appearance of employees, and the availability of necessary equipment and materials.

(2) Reliability is the ability to deliver the accurate, consistent, and dependable of services. Involving the aspects like the ability to fulfill promises, provide reliable and accurate information, and consistently deliver the promised service.

(3) Responsiveness focuses on the willingness and ability to help customers promptly. This dimension considers factors like the speed of service, attentiveness to customer needs, and willingness to address and resolve customer issues or requests.

(4) Assurance is related to competence, courtesy, credibility, and the ability to inspire confidence in customers. It assesses the staff qualifications, their ability to communicate effectively, and their commitment to customer satisfaction and trust-building.

(5) Empathy is the ability to understand and care for customers. It measures the willingness to listen to customer feedback, provide personalized attention, and show concern for customer needs and preferences.

Lehtinen and Lehtinen (1991) stated that the service quality composed of three dimensions

(1) Physical quality are the physical products and physical support, which cover the quality of goods and facilities.

(2) Interactive quality refers to the interaction element between customer and organization, including the personal relationship and the element that facilitate and influence the interactive quality within a service setting

(3) Corporate quality refers to the image or profile of an organization.

Donabedian (1990) divided healthcare service quality in seven dimensions as follows:

(1) Efficacy refers to the ability of treatment care to improve health.

(2) Effectiveness refers to the extent to which achievable health improvement are attained.

(3) Efficiency is the capacity for obtaining the highest possible health improvement at the lowest possible cost.

(4) Optimality refers to the most beneficial cost-benefit balance.

(5) Acceptability is the conformity preferences in regards to accessibility, the patient-practitioner relationship, amenities, the effects of care, and the cost of treatment.

(6) Legitimacy is referred to conformance to societal preferences

(7) Equity refers to fairness in the allocation of care and its effects on health.

Grönroos (1984) identified two dimensions of service quality using categorical terms as

(1) Technical quality refers to what the customer gets from a service

(2) Functional quality associated with how the service is delivered

From the literature review, found that the dimensions of service quality in healthcare mostly use terms that describe service characteristics focused on healthcare. Therefore, the dimension of healthcare service quality was summarized in Table 1 as below:

Table 1 Summary of healthcare service quality models

Authors	Number of dimensions	Key dimensions	Main focus
(Nemati and others 2020)	5	Environment, Empathy, Efficiency, Effectiveness, Efficacy	University hospital and non-university hospital service
(Lee, 2017)	5	Empathy, tangible, safety, efficiency, improvement in care service	Out-patient department and general public service
(Aagja and Garg, 2010)	5	Admission, medical service, overall service, discharge process, social responsibility	Public hospital service
(Roshnee Ramsaran-Fowdar, 2008)	3	Core medical, equipment and records, information dissemination	Private hospital service
(Lim and Tang, 2000)	6	Tangibles, reliability, responsiveness, assurance, empathy, accessibility and affordability	Hospital service
(Lee and others 2000)	7	Tangibles, reliability, responsiveness, assurance, empathy, core medical service, professionalism/skill	State university hospital service
(Donabedian, 1990)	7	Efficacy, effectiveness, efficiency, optimality, acceptability, legitimacy, equity	Healthcare service

Table 1 shows that many of the models were modified from SERVQUAL, and adding some dimensions that are characteristics of healthcare. Since many studies claimed that SERVQUAL was not appropriate to be applied in the healthcare industry due to a lack of dimensions of technical quality that are important to patients since healthcare is a professional service (Kang and James, 2004; Roshnee Ramsaran-

Fowdar, 2008). As for this study, the HEALTHQUAL multidimensional service quality model developed by Lee (2017) was adopted as the research framework. By adapting some measurements of general healthcare practice to the TCM context for a corresponding research topic. The model is composed of both technical quality, which focuses on the core purpose of service and functional quality, which focuses on the customer's feelings and interactions throughout the service encounter and how the service is offered and experienced.

Concepts of Customer Satisfaction

1. Definition of customer satisfaction

Zhong and Moon (2020) defined customer satisfaction as the overall evaluation of a product or service based on the entire purchasing and consumption experience over time.

Hill and Brierley (2017) described customer satisfaction as a measure of organizational performance according to customer needs.

Kaura and others (2012) described customer satisfaction as the emotional and psychological condition that arises from a customer's perception of the quality of the services they received, both during and after the interaction.

Yoo and others (2012) defined as the feelings of pleasure as the firm delivered services that either met or exceeded customers' expectations.

Oliver (2010) clarified as a customer assessment of the product or service offered in real-time or post-purchase with a satisfying degree of overall usage-related fulfillment, including under and over fulfillment.

Chen (2010) defined as the assessment of perceived quality and actual service performance, that might lead to customer satisfaction or dissatisfaction.

Churchill and others (1982) defined as the assessment of a service provided based on the actual performance, regardless of initial expectations or the disconfirmation experience.

Aday and Andersen (1974) illustrated customer satisfaction as the evaluation of a service in terms of the quantity or quality of care received based on the customer's subjective perception after experienced a service.

In summary, customer satisfaction refers to the customer's attitude toward service after experience. This is a crucial metric for determining the capacity of an organization to understand and meet customers' needs and expectations. A high degree of customer satisfaction indicates the organization has efficiently handled customer needs, whereas low satisfaction may indicate gaps in service delivery.

2. Importance of Customer Satisfaction

Syah and Wijoyo (2021) state that satisfied customers tend to exhibit loyalty and are more likely to share positive experiences, contributing to word-of-mouth intention, which enhances the company's reputation.

Otto and others (2020) high levels of satisfaction have a beneficial impact on the firm's marketing performance results, as well as its accounting and market measurements of financial performance.

Gonzalez (2019) states that customer satisfaction is crucial for businesses as it is closely linked to service quality and trust. Patient confidence and financial concerns are key factors in satisfaction. By utilizing lean tools such as Quality Function Deployment (QFD) and benchmarking directly to address customer expectations can help increase loyalty and satisfaction.

Gupta and Rokade (2016) state that customer satisfaction is important for evaluating service quality within the healthcare industry as an indicator of business success or failure, depending on received feedback. Patient satisfaction and service quality significantly shape outcomes and affect behavioral intentions.

Bennett and Rundle-Thiele (2004) state that when customers are satisfied with a service or brand, they are more likely to recommend to others, and are more likely to revisit or repurchase instead of switching to other alternative choice.

Gorst and others (1998) describe the importance of customer satisfaction in business, which led to increased revenue and long-term sustainability. Meeting

customers' demands results in a positive response, as it aligns with their expressed preferences. Despite fulfilling customer desires, the underlying issues still persist and may potentially lead to dissatisfaction.

Matzler and others (1996) emphasized customer satisfaction as a fundamental driver of customer loyalty and long-term success. Understanding customer satisfaction could manage specific service attributes that influence customer perceptions.

In conclusion, customer satisfaction is a critical driver of business growth and serves as an indicator of success. Satisfaction signals favorable responses including increased trust, enhance reputation, improve business image, and expand market share. Conversely, dissatisfaction signals the opposite, but also provides valuable feedback for improvement, which can subsequently lead to higher satisfaction levels. Prioritizing customer satisfaction is important for maintaining customer trust and support, which are crucial for sustained success.

3. Dimension of Customer Satisfaction

Customer satisfaction is influenced by several variables, each shaping the experiences and perceptions of customers. Numerous studies have explored the factors impacting satisfaction in healthcare settings, leading to varying dimensions across different types of services.

Prakash (2010) proposed six dimension of customer satisfaction focused on healthcare safety system.

(1) Safe: refer to the minimize of risks and harm to patients, ensuring a secure environment for treatment. Including protocols to prevent medical errors and the use of safe medical practices to protect patient well-being.

(2) Equitable: refers to fair and accessible to customer, regardless of their background or circumstances, promoting justice in healthcare access.

(3) Evidence-based: refers a treatment should be practice based on the research and guidelines, ensuring patients receive effective and scientifically supported care.

(4) Timely: refers to the speed of service delivery aimed to reduce waiting times and prevent health issues from worsening.

(5) Efficient: refers to maximize used of resources, while reduce waste, and improving the quality of care.

(6) Patient-centered: refers to personalized of care to meet individual patient needs and preferences, fostering a collaborative between patients-providers relationship.

Perera and Usgodaarachchi (2009): proposed three factors on measure healthcare service:

(1) Clinical environment: refers to the physical setting, facilities, and operational qualities of a healthcare clinic that impact the patient experience.

(2) treatment process: refers to the interactions, communication, and actions taken by healthcare providers and staff throughout a patient's care experience

(3) Outcome of care: refers to the results and effectiveness of the healthcare service received, including the extent to which it addresses the patient's health issues, satisfaction with the results, and any unintended effects.

Imanaka et al. (2007)

(1) Treatment: refers to the comprehensive approach and quality of care provided by the healthcare professional, focusing on patient interactions and clinical expertise.

(2) Communication: reflects to the clarity, professionalism, and approachability of interactions within the healthcare setting.

(3) Facility: refers to the operational and physical aspects of a healthcare environment that contribute to a patient’s overall experience.

(4) Appearance: refers to the visual presentation and cleanliness of the physical environment and staff.

Chaffin et al. (2007) developed a conceptual model for assess customer satisfaction, divided into two dimensions.

(1) Belief about care: refers to a patient's perception and confidence in the quality and attentiveness of the healthcare received, shaped by their interactions with the provider.

(2) Environment: refers to the accessibility and efficiency of a healthcare clinic's scheduling and appointment management, impacting patient convenience and satisfaction.

Andersen (1995) developed a framework of behavioral model of healthcare service which effected customer satisfaction as outcomes, divided into four main factors.

(1) Environment: refers to the surrounding conditions and factors that influence a system or organization

(1.1) Healthcare system refers to the pattern of nation health policy, resources, and the organization.

(1.2) External environment refers to a physical, economics, and political aspects.

(2) Population characteristics refer to the traits and factors that define and influence a group of individuals within a population

(2.1) Predisposing characteristics refers to individual demographic, such as age and gender, social structure, for example education and occupation, and health beliefs, such as the attitude and knowledge towards health.

(2.2) Enabling resources is refer to the practical means and support system that facilitates healthcare utilization. Including personal-level resource, such as income and health insurance, and community-level resource, such as availability of care provider and facilities.

(2.3) Need refers to individual perceived or actual health problem that required attention or seek health professional.

(3) Health behavior refers to the actions and practices individuals engage in that affect their health outcomes

(3.1) Personal health practices refer to the activities aimed at improving health outcomes such as self-care, dietary choice, and exercise routine.

(3.2) Use of health services refers to the utilization of available health service, which involved factors like 1) Type of service (e.g. orthopedic, dental, acupuncture), 2) Site (e.g. private hospital, public hospital, specialized hospital), and 3) Purpose of the visit (e.g. medical checkup, treatment, rehabilitation, or preventive care).

(4) Outcomes refer to the results and effect of healthcare on individuals, encompassing:

(4.1) Perceived health status refers to how individual subjectively rate about one's health

(4.2) Evaluated health status refer to objective measurement determine by healthcare provider

(4.3) Consumer satisfaction refer to the feelings after access healthcare utilization compared with their need, divided in to six dimensions, as

(4.3.1) Convenience refers to the ease of accessibility to services, such as waiting time, availability of care when needed, and comfortability of the service area.

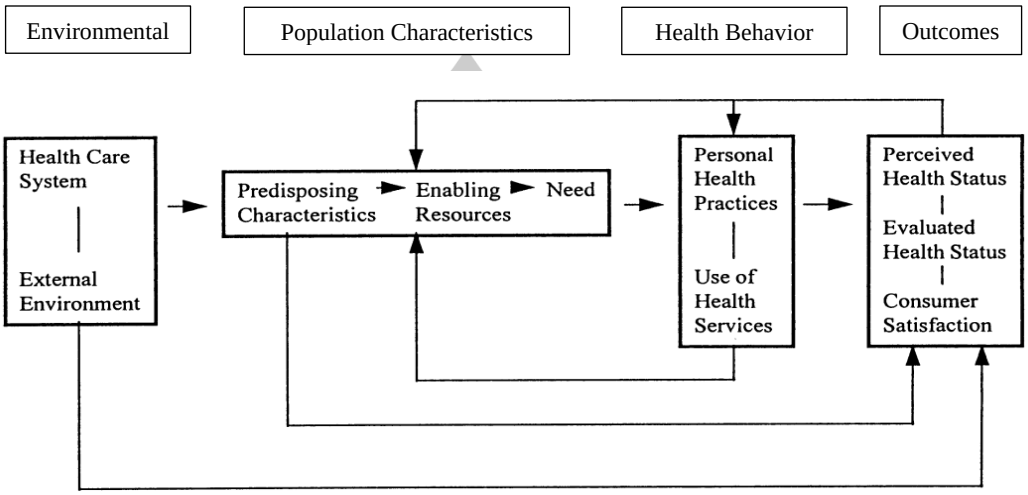
(4.3.2) Costs refers to fair and reasonable price of service care.

(4.3.3) Coordination refers to the delivery system of care between resource and organization.

(4.3.4) Courtesy refers to the attitude of care provider towards customer.

(4.3.5) Information refers to the instruction or advice that provider given to the customer about dealing with the illness.

(4.3.6) Quality refers to the judgement of the care provider on giving a practice.



Source: Andersen (1995)

Figure 2 Behavioral model of health service

Linder-Pelz (1982) identified five key variables that are measure customer satisfaction with healthcare context:

(1) Occurrences: the actual events during the healthcare process delivery along with how patient perceive.

(2) Value: the assessment of specific attribute or aspects as good or bad.

(3) Expectations: the beliefs regarding the likelihood of certain attributes being present and the expected outcomes of the healthcare experience.

(4) Interpersonal comparisons: the process of evaluating the healthcare encounter by comparing it to other similar experiences known to the individual.

(5) Entitlement: the belief that one has a rightful claim to certain outcomes or services from healthcare providers

Murray and Wiese (1975): developed a customer satisfaction scale to understand reason of customer utilization,

(1) Economic: refers to the cost-related aspects of healthcare services, including the fees charged for treatments and procedures.

(2) Convenience: refers to the ease and comfort of the treatment experience, including factors such as pain management, minimizing patient

discomfort, and reducing fear associated with treatments or equipment. Emphasize on the process as accessible and reassuring as possible for the patient.

(3) Quality: refers to the overall standard of care provided, including the competence and expertise of care provider, the reputation and image of the provider, and their commitment to alleviating patient discomfort and pain.

The summary of customer satisfaction dimensions was summarized, and show in Table 2 below.

Table 2 Summary of customer satisfaction dimensions

Authors	Number of dimensions	Key dimensions	Main focus
(Prakash, 2010)	6	Safe, equitable, evidence-based, timely, efficient, patient-centered	Dermatological
(Perera and Usgodaarachchi, 2009)	3	Clinical environment, treatment process, outcome of care	Dental
(Imanaka and others 2007)	4	Treatment, communication facility, appearance	Dental
(Chaffin and others 2007)	2	Belief about care, environment	Dental
(Andersen, 1995)	6	Convenience, cost, coordination, courtesy, information, quality	Healthcare service
(Linder-Pelz, 1982)	5	Occurrences, value, expectations, interpersonal comparisons, entitlement	Healthcare service
(Murray and Wiese, 1975)	3	Economic, convenience, quality	Dental

A literature review revealed that customer satisfaction in healthcare is primarily influenced by dimensions of service quality, perceived value, and cost, as showed in Table 2, highlighting how patients assess the effectiveness, benefits, and affordability of services received to determine their overall satisfaction with healthcare experiences.

4. Kano Model

The Kano Model is a qualitative theoretical framework developed to explore how different features of a product or service influence customer satisfaction (Kano and others 1984). Initially introduced for use in product development, the model has since been widely applied to various service industries, providing insights into enhancing customer experience.

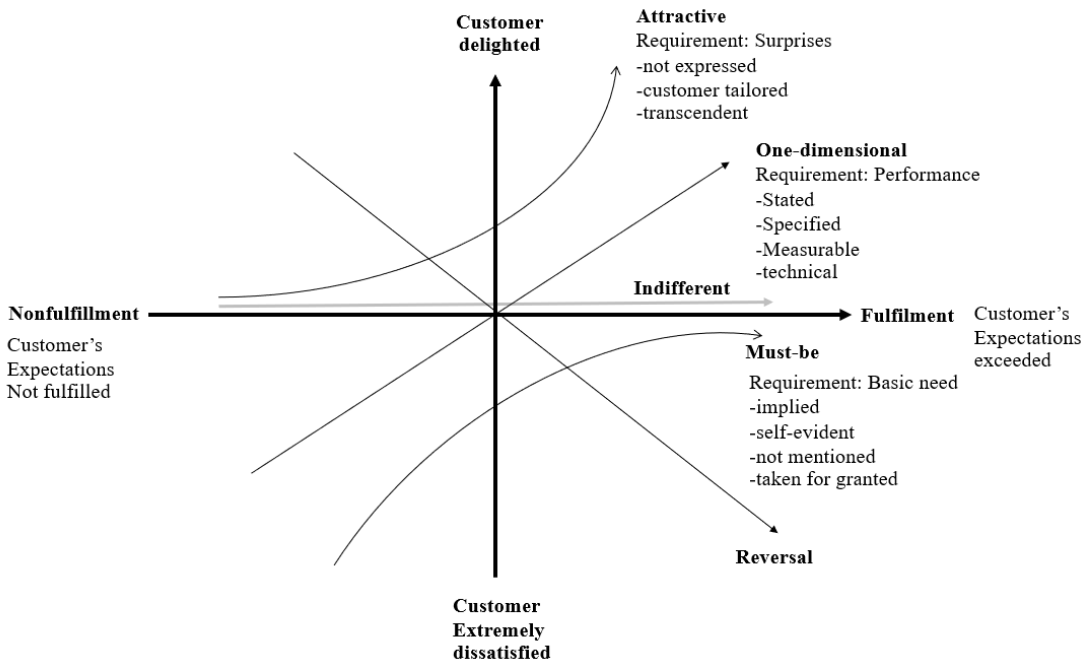
The differentiation of the Kano model from other frameworks is its focus on the subjective experiences of customers. Unlike traditional models that rely heavily on internal problem analysis and self-directed improvements, the Kano model enables organizations to evaluate and refine their services based on direct customer feedback. This approach ensures that service enhancements are aligned with actual customer preferences, thereby improving satisfaction in a targeted and effective manner (Tripathi et al. , 2017).

The Kano model is visually represented on a two-dimensional graph, illustrating the relationship between the degree of fulfillment of customer requirements and the resulting level of customer satisfaction (Kano and others 1984). This model challenges the assumption of a linear relationship between service attributes and customer satisfaction, emphasizing that satisfaction does not always increase proportionally with the implementation of an attribute.

In the Kano graph, the x-axis represents the degree of implementation or fulfillment of a specific service or product attribute, ranging from absence to full implementation. The y-axis, on the other hand, measures the corresponding level of customer satisfaction, ranging from extreme dissatisfaction to high satisfaction. This graphical representation provides a clear visualization of how different attributes impact satisfaction levels, highlighting that some attributes may yield significant satisfaction gains when fulfilled.

By mapping attributes onto this graph, organizations gain actionable insights into how variations in attribute fulfillment influence customer satisfaction, enabling more informed decisions for service improvement. This approach is particularly valuable in identifying attributes that maximize satisfaction with minimal

resource investment (Berger, 1993; Matzler and Hinterhuber, 1998). The graph is shown in Figure 3 below:



Source: Matzler and Hinterhuber (1998)

Figure 3 Kano model

The figure reveals satisfaction features (customer preference) into five categories as follows (Berger, 1993):

1. Attractive category: Attractive qualities are characteristics that customers may not expect. If these attributes are present, they result in unexpected satisfaction and fulfillment, but there is no dissatisfaction if they are absent. Exceeding customer demands might help differentiate service. Personalized and surprising gestures in TCM service, such as a complimentary cup of warm herbal tea after a treatment, may be viewed as excitement requirements.

2. One-dimensional category: Also referred to performance needs, this attribute and customer satisfaction are in linear. The higher the performance of these attributes, enhance the higher customer satisfaction. Also, when the service were poor

performed, it leads customer dissatisfaction. By improving these attributes, it can lead to customer satisfaction. A shorter of appointment waiting times are one example in healthcare service.

3. Must-be category: Also known as must-have quality. These attributes are the basic needs that customers require as a minimum standard. Meeting these attributes does not lead to customer satisfaction, but in their absence, customer dissatisfaction increases. Basic needs are taken for granted, and customers do not show joy or excitement when they are met since they are anticipated. Such as an accurate diagnosis from the practitioner.

4. Indifferent category: These attributes have little or no impact on customer satisfaction. Customers are often unconcerned about whether or not these demands are addressed. They are not strongly influencing service decisions. An example in healthcare services might include the color of the pillow in the examination room.

5. Reverse category: These attributes are opposite to must-be attributes, it has a negative impact on satisfaction. When present, can actually lead to dissatisfaction. For instance, the excessive of follow-up communication from care-provider.

In addition, Kano model is occasionally referred to as possessing three attributes: attractive, one-dimensional, and must-have. With the fact that the Kano model has been employed in the domain of quality improvement and product creation, where indifferent and reverse qualities would not be necessary to be focused (Ting and Chen, 2002). Furthermore, the attractive attribute that once differentiated it from other competitors has become a basic requirement with the passage of time. As a result, desirable features may only be transient by nature, depending on customer expectations (Emery and Tian, 2002).

To transform the Kano model into a more quantitative framework, service attributes must be categorized appropriately using the Kano questionnaire. This questionnaire employs a bipolar measurement system, consisting of functional

(positive) and dysfunctional (negative). Each form assesses customer perceptions to the presence or absence of a specific service attribute.

The distinctive feature of the Kano questionnaire lies in its structured approach. It presents clear, descriptive statements for each service attribute, ensuring that respondents can fully understand the attribute being evaluated. Additionally, the questionnaire provides comparative insights by exploring both the functional and dysfunctional aspects of the same attribute. The functional question addresses customer perceptions when the attribute is present, while the dysfunctional question evaluates responses when the attribute is absent. This bipolar format is essential for capturing the asymmetric nature of customer satisfaction and dissatisfaction (Gregory and Parsa, 2013).

Table 3 Kano model question format
Source: adapted from Matzler and others (1996)

Functional form question	
Staff pay attention with empathic listening while taking medical history	5. I like it that way 4. It must be that way 3. I am neutral 3. I can live with it that way 1. I dislike it that way
Dysfunctional form question	
Staff **do not** pay attention with empathic listening while taking medical history	5. I like it that way 4. It must be that way 3. I am neutral 2. I can live with it that way 1. I dislike it that way

The combination of the answers results in the classification of the characteristics (Matzler and others 1996). When the two answers are arranged within the Kano evaluation table, in Table 4, the service attribute can be categorized into one of five categories.

Table 4 Kano Evaluation Table
Source: Matzler and Hinterhuber (1998)

Customer Requirements		Dysfunctional (Negative Questions)				
		5. Like	4. Must Be	3. Neutral	2. Live with	1. Dislike
Functional (Positive Questions)	5. Like	Q	A	A	A	O
	4. Must Be	R	I	I	I	M
	3. Neutral	R	I	I	I	M
	2. Live with	R	I	I	I	M
	1. Dislike	R	R	R	R	Q

A = Attractive, O = One-dimensional, M = Must be, I = Indifferent, R = Reverse, Q = Question

For example, in Table 3, if the customer chooses “I like it that way” in the functional term, and “I can live with it” in the dysfunctional term question, then compared in Table 4, the result fell on A, it could be interpreted that this attribute was classified in attractive category.

Several studies in healthcare service quality applied the Kano model as a tool to improve customer satisfaction (Barrios-Ipenza and others 2021; Gupta and Srivastava, 2011; Materla et al. , 2019; Paik and Kim, 2014). According to the study, suggest that the Kano model is an effective instrument for categorizing service attributes with different levels of customer satisfaction. Some studies suggest that there should further step to elevate the quality of the Kano model or combined with other method, such as, Quality Functional Deployment (Tontini, 2007), Important Performance Analysis (Wang and Chen, 2018), and Kansei Engineering Method (Cai et al. , 2023). By effectively balancing customer demands with strategic resource

allocation to meet and exceed expectations, businesses could enhance perceptions of quality and value, therefore fostering long-term loyalty and competitive advantage.

Related Literature

Khumprasert and other (2021) studied service quality and customer satisfaction of TCM in Thailand. A semi-structured interview was conducted with two service providers and ten customers. The SERVQUAL measurement was taken into the study as a service dimension, and the result indicates the factors affecting customer choice of service 1) tangibility: (1) A clear treatment plan, (2) returning of herbs or cash back when the given prescription does not affect well, and (3) refuse the customer when their ailment is not suitable for TCM treatment; 2) Reliability: (1) symptoms were alleviated after the treatment, (2) providing high-quality herbs, and (3) not concealing the customer when herbs are unavailable; 3) Responsiveness: (1) provide a record information and medical history, (2) available for pre-ordering medication and delivery when customers are unable to self-pickup, and (3) helping with ordering herbs when they are not available in store; 4) Assurance: (1) not offering medication in poor condition, especially herbs, (2) not offering prescriptions from others businesses, and (3) Not convince customers to purchase medications they already own; 5) Empathy: (1) understanding customers can desire to choose the medication, whether in the form of decoction or pills, (2) notifying the customer of the drug price before prescribing, (3) providing information about the prescribed medications, and (4) participation in social activities to maintain reciprocity.

Vanichchinchai (2021) studied service quality expectations, perceptions, and satisfaction in outpatient departments and proposed the priority nonconformity index (PNCI) to assess the overall prioritization of efforts in relation to expectations, which can be used as an indicator to assess the efficiency of resource allocation to fit customer requirements. SERVQUAL was used to gather data from 220 care providers with various positions in Thai hospitals nationwide. Paired-samples t-test and importance-performance analysis (IPA) were used for data analysis. The results showed assurance as the most important and best performed dimension, with the least

dissatisfaction. Meanwhile, tangible is the least important and least performed dimension with the most dissatisfaction. IPA found assurance and responsiveness dimensions as strengths, suggested allocating resources from empathy to enhance satisfaction with reliability. The PNCI results of Thai hospitals is 0.8; which suggests similar strategies to IPA.

Siripipatthanakul (2021) studied the relationship between service quality, customer satisfaction, word-of-mouth, and revisit intention among patients in a private dental clinic in Thailand. The study employed a quantitative approach; a sample size of 352 was attained by the quota sampling method among four age groups equally. The PLS-SEM was adopted in the study, reveal that customer satisfaction is a mediator between service quality and WOM, as well as revisit intention. Referring to service quality, empathy is the highest factor influencing patient satisfaction, followed by reliability, tangibles, assurance, and responsiveness. Revisit intention could be predicted by customer satisfaction by 53.4 percent and WOM were explained by customer satisfaction by 42.9 percent.

Ali and others (2021) reveal the impact of service quality on customer satisfaction in the hospitality industry by applying the SERVPERF model. A quantitative method was used in the study. A sample size of 111 participants was gathered by the random sampling method. The results showed the influence of different service quality dimensions on satisfaction levels in hotels. The study proved that four service quality dimensions 1) empathy, 2) responsiveness, 3) assurance, and 4) tangible had positive relationship with customer satisfaction. Except for reliability, which showed a negative relationship with customer satisfaction.

Jaleel and others (2021) studied the interrelationship between service quality, customer satisfaction, and behavioral intention in medical tourism service. Some of the service quality related items were adapted from HEALTHQUAL model, customer satisfaction was grounded from Expectation-Disconfirmation Theory. The findings demonstrate that customer satisfaction is favorably and considerably impacted by service quality, and that customer satisfaction in turn positively and significantly influences behavioral intention.

Zhou and other (2021) studied the factors influencing patient satisfaction with a total of 6,480 surveys of outpatients from 16 public tertiary hospitals in China. The service quality which refers to the quality of medical technique practices as well as fee transparency. The result showed that accurate diagnosis and the treatment effects were ranked as the two lowest in the service quality dimension.

Ampaw and others (2020) studied health care service quality and patient satisfaction in Ghana with three dimensions of service quality: empathy, tangible, and safety. The SEM data analysis of 398 samples showed a significant association among perceived quality, patient satisfaction, and tangibility. In contrary, the result did not demonstrate a causal relationship between perceived quality, empathy, and safety. This suggest that patients were dissatisfied with empathy and safety measures at the hospitals.

Chocknakawaro and others (2020) studied the service quality, satisfaction, and loyalty of physical medicine and rehabilitation outpatients from three hospitals under Mahidol University, Thailand. The data was collected from 400 samples by quota sampling and the purposive sampling method. The collected data was analyzed using multiple regression analysis and hierarchical multiple regression analysis at a significance level of 0.05. The results showed all 5 dimensions of SERVQUAL have an influence on satisfaction, and only reliability and assurance have an influence on loyalty, with satisfaction as a partial mediation.

Nonthapot and Nasoontorn (2020) investigated the impact of perceived service quality on customer satisfaction with the service quality of the ferry service in Nakhon Phanom, Thailand. A questionnaire was used as a tool, to collect data from 505 samples of Thai and Lao passengers via the simple random sampling method. The collected data was analyzed using the CFA and PLS-SEM. The results showed that perceived service quality had the same impact on customer satisfaction with the service quality. The highest influential factors were tangible, responsiveness, assurance, empathy, and reliability.

Limoubpratum and others (2020) studied the service quality and customer satisfaction of import-export agents. Service quality was measured using SERVQUAL dimensions, and customer satisfaction dimensions consisted of 1)

equitable, 2) timely service, 3) ample service, 4) continuous service, and 5) progressive service. A questionnaire was used as a research tool with 400 individuals. The result showed a positive relationship between service quality and customer satisfaction, with tangible, reliable, responsive, and assurance service aspects significantly affecting customer satisfaction.

Caskey and others (2019) studied the customer's expectations across TCM and Western Medicine (WM) usage in Taiwan, focusing on the healthcare service physical environment (healthscape). The respondents were asked to rate the importance of 28 healthscape factors. Since the total of 469 respondents were mainly dual users, using both TCM and WM (49.7%) and exclusive WM users (40.5%), the results indicate that dual users accept some disparities between paradigms. Exclusive WM users, on the other hand, apply their current WM expectations to TCM settings, boosting the risk of dissatisfaction and low adoption. As a result, healthscape designs do not need to be precisely patterned after a WM standard, as dual users allow variances.

Potluri and Angiating (2018) studied healthcare service quality and customer satisfaction in Nigeria with 150 samples. The majority of the respondents were male, ages 25 – 40, with undergraduate educational level. The perception of services was analyzed using the correlation between the patient's overall satisfaction and SERVQUAL variables. The results show most of the respondents were dissatisfied with the responsiveness of the service providers when compared to tangibility and reliability. Also, there is no relationship between tangibility and overall satisfaction. The 42 percent of respondents with a neutral perspective indicated that they are either satisfied or dissatisfied, and 43.3 percent of dissatisfied customers. The results show the failure of service quality in Nigeria hospital.

Wang and Chen (2018) studied service quality of TCM clinical medical in Taiwan, the Kano model and Importance-Performance Analysis (IPA) was applied to evaluate service quality and satisfaction. The questionnaire design from practitioner' and physician' experiences together with Donabedian structure, process, and outcome dimensions, including 22 items regarding service quality in TCM. The results showed six factors of the TCM service quality fall in the quadrant of high importance and low

performance. The factors are as follows: (1) the clinic environment is neat, the clinic nameplate is visible; (2) when patients complain, the doctor properly handles the treatment process; (3) during the treatment process, the medical professional pays attention to patient discomfort with acupuncture and moxibustion; (4) the medical professional has a good service attitude, is courteous, and cares for the patients; (5) the patients feel progress after treatment; and (6) the medication are beneficial.

Al-Damen (2017) studied the interrelationship between service quality, customer satisfaction, and behavioral intention. The study objective is to measure the impact of perceived health care service quality on patient satisfaction at a public hospital in Jordan. The study developed SERVQUAL measurement items, and collected data from a total of 448 outpatient participants. Results show that there is an impact of perceived health care service quality on overall patient satisfaction. Reliability had the most influence, followed by empathy and assurance.

Wongrukmit and Thawesaengskulthai (2014) studied hospital service quality preferences among culture diversity, taking into account of cultural difference between Japan, Myanmar, the Arab States, and Thailand. The sample size was 824 individuals, including patients and their family. To determine service quality attributes, the study applied an integrated Kano-SERVQUAL approach with 36 attributes of service, align within SERVQUAL dimensions. The t-test and ANOVA was used for analytic technique in the study to divide market segments based on nationality, with an analysis grid to find regions for growth. The findings show significant differences in views of service quality across countries. The result shows, all 36 attributes were categorized in one-dimensional as for Myanma and Arab patient. For Japanese patient, 35 attributes were categorized as one-dimensional and 1 attribute categorized as must-be. For Thai, 32 attributes were categorized as one-dimensional, 2 attributes were categorized as indifferent, and 2 attributes were categorized as attractive quality.

El-Hashmi and Gnieber (2013) studied service quality in the context of clinical laboratories by using the Kano model technique. The objective of the study is to determine how effectively the service quality attributes are able to satisfy customer needs. The data was collected through a questionnaire from 150 outpatients at

Benghazi Medical Center, northeast of Libya. The study applied the SERVQUAL model, consist of 26 pairs of questions. The results showed 13 attributes categorized as indifferent, 6 attributes categorized as one-dimensional, and 6 attributes categorized as attractive. The attractive attributes refer to (1) Attending of personnel whenever called, (2) telling patients exactly when services will be performed, (3) prompt performance of medical and non-medical services (4) having knowledge to answer patients' questions. (5) availability of 24-hours services, and (6) having convenient operating hours to all labs' patients.

Punnakitikashem and others (2012) studied service quality of a tertiary level hospital that implementing Lean management in Thailand. The research assesses patients' expectation and satisfaction pertaining to service quality. The data was collected from 450 patients and analyzed by using the SERVQUAL model. The results revealed that overall service quality score is positive, and no significantly different between overall perception and expectation. The studied showed, the largest positive gap between patients' perception and expectation is tangibility. The largest negative gap is with respect to assurance.

Sulisworo and Maniquiz (2012) studied service quality and customer satisfaction in healthcare service. Using integration of Kano-SERVQUAL approach. The results found that out of the total 26 attributes of service, 16 service attributes categorized as one-dimensional, 4 service attributes categorized as must-be, and 3 attributes as attractive quality. The attractive quality refers to (1) quick and appropriate staff response for patient, (2) employees are friendly and polite in serving, and (3) give a specific need of their patients including food and beverage.

CHAPTER III

RESEARCH METHODS

This chapter presents the research methodology, outlining the approach, methods, and techniques used to gather and analyze data. Divided into six sections as follows:

1. Population and Sample
2. Data Collection Instrument
3. Instrument Development
4. Data Collection Method
5. Scrutinizing Data and Analysis of Data
6. Statistics Used in Data Analysis

Population and Sample

The population for this study comprised TCM customers in Thailand who received service from various healthcare provider including public hospitals, private hospitals, and private clinics were taken into account. Consequently, the exact size of the population was unknown.

The sample in this study consisted of 394 TCM customers in Thailand who had experienced the service within one year. This timeframe was chosen because the improvement of service quality and customer satisfaction is a dynamic construct that evolves over time. The Cochran (1977) sample size formula was applied, assuming maximum variability (p = 0.5), 95% confidence level (z = 1.96) and 5% acceptable margin of error (e = 0.05). The Cochran formula was calculated as follows:

$$n = \frac{z^2 pq}{e^2}$$

Where:

n is the sample size

z is the value of desired confidence level;

95% confidence level or significance level at 0.05, z = 1.96

pq is the estimate of variance

p is the maximum possible proportion

q = 1-p

e is acceptable margin level of error

$$\text{Thus, } n = \frac{(1.96)^2(0.5)(0.5)}{(0.05)^2} = 384.16 \approx 385$$

The sample size was calculated to be 385 participants. The convenience sampling method was taken with a screening question to ensure respondent's specific qualification with the question "Have you received TCM service within one year?". If the answer was "no" means the respondent was not a target sample in this study, then the questionnaire ended. To account for potential unusable data and ensure the accuracy of the research, the questionnaire widely distributed through online channel and stopped when 400 responses with "yes" were collected. The returned questionnaire with incomplete or straight- lined answers were discarded. The final sample size consisted of 394 customers, calculated as 98.5 percent from all responded, which is appropriate and sufficient for quality of the research (Kotrlik and Higgins, 2001).

Data Collection Measurement

The online questionnaire was used for data collection in this research study, developed from the objective purpose of this study, the review of literature, and the research framework. Questionnaires were divided into two parts as follows:

Part 1 The general information of respondents used a checklist scale consisting of seven items, including gender, age, highest level of education, average income per month, types of hospital visited, main purpose of service usage and frequency of service usage within one year.

Part 2 Opinion about service quality based on HEALTHQUAL model (Lee, 2017), a Kano model questionnaire was developed using both functional and dysfunctional question formats. The five-points rating scale was employed and included with 20 question pairs cover five dimensions of service quality. Composed of (1) Empathy 4 question pairs, (2) Tangible 5 question pairs, (3) Safety 4 question pairs, (4) Efficiency 4 question pairs, and (5) Improvement in care services 3 question pairs. Data is presented in tabular form with a description defined the ratings below (Matzler and others 1996)

5	means	I like it that way
4	means	It must be that way
3	means	I am neutral
2	means	I can live with it that way
1	means	I dislike it that way

Interpret of average mean

4.51 - 5.00	means	opinion in the highest level
3.51 - 4.50	means	opinion in the high level
2.51 - 3.50	means	opinion in the neutral level
1.51 - 2.50	means	opinion in the low level
1.00 - 1.50	means	opinion in the lowest level

Instrument Development

The research instrument was developed as follows:

1. The questionnaire was developed based on literature reviews of related study including service quality, customer satisfaction and Kano model. Also, the definition of variables that combined to form items in the questionnaire. Hence, some items were adapted from a prior study and some were newly developed to be compatible with the questions in this research.

2. Take the result follow step1 to create the questionnaire by considering the content in accordance with the research objectives, conceptual framework and hypotheses.

3. Propose the questionnaire to the thesis advisor to evaluate the appropriateness and accuracy of language usage and coverage of the subject matter in the research. Revise according to the advice and resubmit to verify the completeness of the questionnaire.

4. Propose the questionnaire to the subject matter experts for assessment content validity. The experts are as follows:

1) Assistant Professor Dr. Prathanporn Jhundra-indra
2) Assistant Professor Dr. Kanchana Sukanthasirikul
3) Dr. Anupong Sukprasert

5. Revised follows the expert's advice and proposes to the advisor for reconsideration.

6. Instrument quality control

6.1 Request an ethical approval letter from Mahasarakham Business School, Mahasarakham University to be attached to the questionnaires.

6.2 The questionnaire was adapted from the original English version and translated into Thai by a qualified expert proficient in both Thai and English. The experts are as follows:

1) Assistant Professor Intisarn Chaiyasak, specializes in English with a focus on contemporary textual analysis.

2) Chamnan Para, certified interpreter and translator by the Ministry of Justice, Thailand

6.3 The initial questionnaires were tried out with 30 TCM customers who were not part of the sample for this research. This pre testing was conducted to ensure the questions were clearly understood and aligned with the research objectives.

6.4 The validity was assessed by three subject-matter experts' judgements show that the overall Item-Objective Congruence (IOC) indicated 1 to all items (Table 31 Appendix C), show the adequacy of the content validity. Determining the discriminant power of individual questionnaire items through item-total correlation. The factor loading values of functional question ranged from 0.507 - 0.845, which exceeds the minimum threshold of 0.4 as recommended by (Nunnally, 1978)

6.5 The reliability was tested using Cronbach’s alpha, reverse scoring was performed to align negatively phrased items with the direction of positively phrased items, ensuring consistent interpretation of responses, ranged from 0.763-0.774, which is above threshold 0.7, thereby suggested that the questionnaires demonstrate acceptable reliability (Nunnally and Bernstein, 1994). (Table 32 Appendix C)

7. The results of the questionnaire quality control will be prepared as a complete version for further use in collecting data from samples. The results were then used to adjust and finalize the questionnaire for further use in collecting data from samples.

Data Collection Method

The online survey was employed for data collection to ensure convenience and reduce the bias of thoughtfulness that may arise when respondents complete survey in the presence of staff. The specific data collection procedures are outlined as follows

1. The online questionnaires was created with Google Form in Thai version.

2. The questionnaires was distributed through a social media channel via Line group application, namely, TCM practitioner in public hospital, consists of 218 members, and Facebook group, namely, Traditional Chinese Medicine (in Thai), consists of 8,300 members. Then requested cooperation from connection in forwarding questionnaires to a randomly selected sample.

3. Data was collected from 394 questionnaires, the accuracy and completeness of the responses were verified to ensure quality for further data analysis.

Scrutinizing Data and Analysis of Data

The data collected from questionnaire was analyzed by using Kano calculation program and the SPSS program, following these steps:

Step 1 To analyze the general information of respondents, descriptive statistics were employed to determine the frequency and percentage distributions.

Step 2 To analyze customer satisfaction opinions on the service quality of TCM, descriptive statistics were employed. The collected data were used to calculate the mean and standard deviation.

Step 3 To determine service quality, the differentiation between the means of two groups was tested using a t-test, while a one-way analysis of variance (ANOVA) was employed for comparisons involving more than two groups.

Step 4 To analyze the category of each attribute of TCM service quality, the collected data were aligned with the Kano evaluation table. Descriptive statistics

were then used to identify the highest frequency, which represents the category of each attribute. If the frequency percentage values for each attribute type were equal, the M > O > A > I criteria were applied to appropriately assess the attribute type (Matzler and others 1996).

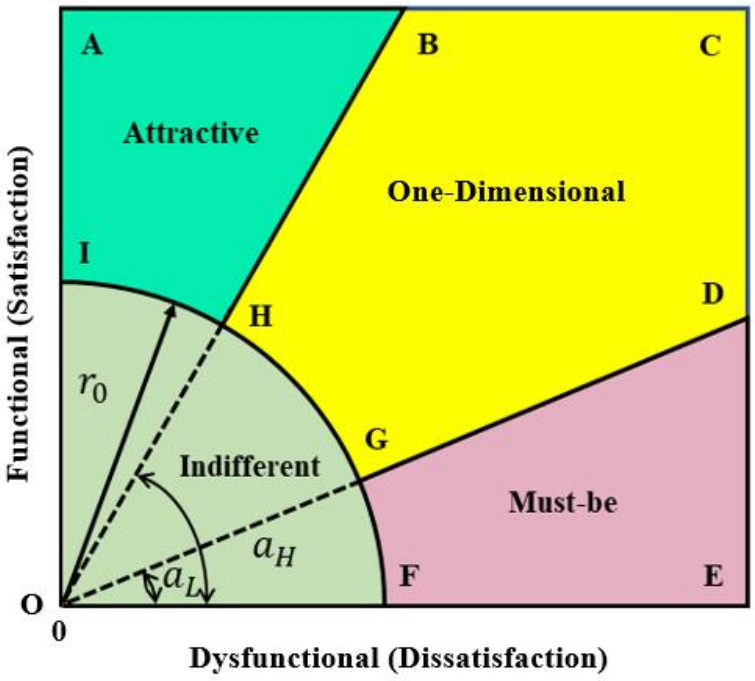
Step 5 To calculate the coefficient satisfaction and dissatisfaction, the following equation were used:

Coefficient of Satisfaction (CS) = (A+O) / (A+O+M+I)

Coefficient of Dissatisfaction (CD) = (O+M) / (A+O+M+I) * (-1)

These coefficients provide a quantitative assessment of how specific service attributes influence customer perceptions. The coefficient of satisfaction (CS) typically ranges from 0 to 1, with a value close to 1 indicating that the attribute strongly enhances satisfaction. Conversely, the coefficient of dissatisfaction (CD) ranges from -1 to 0, where a value close to -1 suggests the attribute significantly contributes to dissatisfaction if not fulfilled. Attributes with values close to 0 in either coefficient have minimal impact on customer satisfaction or dissatisfaction (Matzler and Hinterhuber, 1998).

Step 6 To verify the consistency of results between the analytical and traditional Kano methods, the satisfaction and dissatisfaction coefficients were plotted on a two-dimensional analytical kano model (A-Kano), as shown in Figure 4. Ideally, most values fall within the range of 0 to 1. If the value was negative, it suggested the attribute may belong to either reverse or questionable categories (Xu et al. , 2009). The reverse category, the result could be changed by reversing back between functional and dysfunctional questions, so the data could be adjusted accordingly. As for questionable category, the result was excluded from the averages because they did not contribute useful insight, often due to misunderstanding or ambiguous responses to the question (Berger et al., 1993).



Source : Adopted from Xu and others (2009)

Figure 4 Analytic Kano classification

Step 7 To calculate the customer satisfaction index (CSI) to determine the importance weight of each attribute, the following equation was applied:

CSI = |Dissatisfaction| / Satisfaction

Satisfaction represents the extent to which a service attribute enhances positive customer perceptions when it is successfully delivered. In contrast, dissatisfaction measures the extent to which a service attribute mitigates negative perceptions when it is not adequately fulfilled, with the absolute value of dissatisfaction used in calculations.

Attributes that contribute significantly to satisfaction but generate minimal dissatisfaction when unmet tend to have lower CSI values, commonly associated with attractive category. Conversely, attributes that primarily prevent dissatisfaction but provide limited enhancement to satisfaction, often linked to must-

be attributes, result in higher CSI values. Finally, the attributes that have an equal impact on satisfaction and dissatisfaction, as observed with one-dimensional attributes, typically result in CSI values close to 1 (Matzler and Hinterhuber, 1998). Furthermore, A CSI value exceeding 1 in the one-dimensional category is feasible, as it reflects an attribute that not only enhances satisfaction but also plays a highly significant role in preventing dissatisfaction. This indicates that while the attribute contributes positively to customer satisfaction, its impact on avoiding dissatisfaction is disproportionately higher, underscoring its critical importance in service delivery (Lin et al. , 2017).

Statistics Used in Data Analysis

After collecting data from respondents, all data were compiled for analysis with statistical analysis as follows:

1. Descriptive Statistic
    1.1 Frequency
    1.2 Percentage
    1.3 Mean
    1.4 Mode
    1.5 Standard Deviation
2. Statistics used to assess the quality of instrument
    2.1 Discriminant Power by Item-total Correlations
    2.2 Reliability by Cronbach Alpha-Coefficient
3. Statistics used to test hypothesis
    3.1 t-test
    3.2 F-test

CHAPTER IV

RESULTS

This chapter present the results of the data analysis on the service quality of traditional Chinese medicine using Kano model in healthcare customer perspective with the following sequence.

1. Statistical symbols used to present data analysis
2. The sequence of data analysis presentation
3. The results of data analysis

Statistical Symbols used to Present Data Analysis

$\bar{X}$	refers to a sample mean
S.D.	refers to the standard deviation
SS	refers to sum of squares
MS	refers to mean square
df	refers to degree of freedom
F	refers to statistical tests used to determine the distribution
p-value	refers to statistically significant
CSI	refers to customer satisfaction index
Emp	refers to empathy
Tan	refers to tangible
Saf	refers to safety
Eff	refers to efficiency
Imp	refers to improvement in care service

The Sequence of Data Analysis Presentation

The results of the data analysis were sequentially presented as follows.

Step 1 General information of TCM customers in Thailand

Step 2 Analyze customer satisfaction opinions on the service quality of TCM in Thailand

Step 3 Determine the opinion on TCM service quality with different genders, ages, educational levels, average income per month, healthcare providers, purpose of service usage, and frequency of service usage.

Step 4 Analyze the attribute of TCM service quality with the Kano model

The Results of Data Analysis

Step 1 The general information of 394 respondents is composed of various demographic and usage characteristics, including gender, age, educational level, average income per month, types of hospital visited, purpose of service usage, and service frequency within one year.

Table 5 Characteristics of TCM customers in Thailand

Variables	Frequency	Percentage
1. Gender		
1.1 Male	172	43.65
1.2 Female	222	56.35
Total	394	100.00
2. Age		
2.1 Below or equal to 30 years old	26	6.60
2.2 31 – 40 years old	66	16.75
2.3 41 – 50 years old	104	26.40
2.4 51 – 60 years old	151	38.32
2.5 Above 61 years old	47	11.93
Total	394	100.00
3. Educational level		
3.1 Lower or equal to High school	96	24.36
3.2 Bachelor degrees	225	57.11
3.3 Higher than Bachelor degree	73	18.53
Total	394	100.00
4. Average income per month		
4.1 Less than or equal to 20,000 baht	63	15.99
4.2 20,001 – 30,000 baht	107	27.16
4.3 30,001 – 40,000 baht	140	35.53
4.4 More than 40,001 baht	84	21.32
Total	394	100.00

According to table 5, the results indicated that TCM customer's characteristic of 394 respondents, the majority are female (56.35%). The most common age range is 51 - 60 years old (38.32%), followed by the 41 - 50 years old age group (26.40 %). The educational level of respondents is mostly bachelor degrees (57.11%), followed

by lower or equal to high school (24.36%). The average monthly income is mostly between 30,001 – 40,000 baht (35.53%) and 20,001 – 30,000 baht (27.16%).

Table 6 Behavior of TCM customers in Thailand

Variables	Frequency	Percentage
1. Types of hospital visited		
1.1 Public hospital	147	37.31
1.2 Private hospital	114	28.93
1.3 Private clinic	133	33.76
Total	394	100.00
2. Purpose of service usage		
2.1 Treatment and rehabilitation	150	38.07
2.2 Health and beauty	105	26.65
2.3 Body harmony	139	35.28
Total	394	100.00
3. Service frequency within one year		
3.1 Less than or equal to 10 times	228	57.87
3.2 11 – 20 times	106	26.90
3.3 More than 21 times	60	15.23
Total	394	100.00

According to table 6, the type of hospital that respondents visited most is public hospital (37.31%), followed by private clinic (28.93%). The purpose of using service mostly belong to treatment and rehabilitation (38.07%), followed by body harmony (35.28%). The frequency of service use within one year is predominantly less than or equal to 10 times (57.87%), followed by 11 – 20 times (26.90%) respectively.

Step 2 Analyze customer opinions relate to the service quality of TCM customers in Thailand

Table 7 TCM customers opinion on service quality

Service quality dimensions	$\bar{X}$	S.D.	Level of agreement
1. Empathy	4.71	0.31	Highest
2. Tangible	4.67	0.29	Highest
3. Safety	4.72	0.31	Highest
4. Efficiency	4.63	0.44	Highest
5. Improvement in care service	4.78	0.34	Highest
Total	4.70	0.22	Highest

According to table 7, the TCM customer in Thailand expressed overall service quality as highest level of agreement ($\bar{X}$ = 4.70). When examining individual aspects, the first three highest level of agreements were improvement in care service ($\bar{X}$ = 4.78), followed by safety ($\bar{X}$ = 4.72), and empathy ($\bar{X}$ = 4.71) respectively.

Table 8 TCM customers opinion on empathy dimensions

Empathy	$\bar{X}$	S.D.	Level of agreement
1. Staff pay attention with empathic listening while taking medical history	4.85	0.43	Highest
2. Practitioner explain the medical details with common terms	4.71	0.52	Highest
3. Staff being polite	4.64	0.53	Highest
4. Staff have sense of closeness and friendliness	4.64	0.53	Highest
Total	4.71	0.31	Highest

According to table 8, the TCM customers in Thailand expressed the highest level of agreement ($\bar{X}$ = 4.71) on the empathy aspect of TCM service quality. When examining individual aspects, staff pay attention with empathic listening while taking medical history has the highest level of agreements ($\bar{X}$ = 4.85), followed by practitioner explain the medical details with common terms ($\bar{X}$ = 4.71), and the last two items, staff being polite, and staff have sense of closeness and friendliness has the same level of agreement ($\bar{X}$ = 4.64).

Table 9 TCM customers opinion on tangible dimensions

Tangible	$\bar{X}$	S.D.	Level of agreement
1. The furnishing of the place is aesthetically appealing and comfortable	4.89	0.36	Highest
2. Soft music during treatment	4.68	0.56	Highest
3. A cup of herbal tea is served after a treatment	4.63	0.59	Highest
4. Using advanced medical equipment	4.57	0.53	Highest
5. Change bedsheets for each person	4.58	0.56	Highest
Total	4.67	0.29	Highest

According to table 9, the TCM customer in Thailand expressed the highest level of agreement ($\bar{X}$ = 4.67) on the tangible aspect of TCM service quality. When examining individual aspects, the first three highest level of agreement were that the furnishing of the place is aesthetically appealing and comfortable ($\bar{X}$ = 4.89), followed by soft music during treatment ($\bar{X}$ = 4.68), and a cup of herbal tea is served after a treatment ($\bar{X}$ = 4.63) respectively.

Table 10 TCM customers opinion on safety dimensions

Safety	$\bar{X}$	S.D.	Level of agreement
1. Receive TCM services by TCM registered practitioner	4.93	0.26	Highest
2. Practitioner expressed confidently while treating	4.81	0.42	Highest
3. Separate treatment room for male and female	4.65	0.55	Highest
4. Not feeling aching during treatment delivery	4.51	0.70	Highest
Total	4.72	0.31	Highest

According to table 10, the TCM customers in Thailand expressed the highest level of agreement ($\bar{X}$ = 4.72) on the safety aspect of TCM service quality. When examining individual aspects, the first three highest level of agreements were received TCM services by TCM registered practitioner ($\bar{X}$ = 4.93), followed by practitioner expressed confidently while treating ($\bar{X}$ = 4.81), and separate treatment room for male and female ($\bar{X}$ = 4.65) respectively.

Table 11 TCM customers opinion on efficiency dimensions

Efficiency	$\bar{X}$	S.D.	Level of agreement
1. Not using unnecessary medication or treatment	4.55	1.04	Highest
2. Call notification for appointment confirmation	4.75	0.53	Highest
3. Waiting time for service less than 15 minutes	4.60	0.71	Highest
4. The convenience of service procedures	4.61	0.61	Highest
Total	4.63	0.44	Highest

According to table 11, the TCM customer in Thailand expressed the highest level of agreement ($\bar{X}$ = 4.63) on the efficiency aspect of TCM service quality. When examining individual aspects, the first three highest level of agreements were Call notification for appointment confirmation ($\bar{X}$ = 4.75), followed by the convenience of service procedures ($\bar{X}$ = 4.61), and waiting time for service less than 15 minutes ($\bar{X}$ = 4.60) respectively.

Table 12 TCM customers opinion on improvement in care service dimensions

Improvement in care service	$\bar{X}$	S.D.	Level of agreement
1. Practitioner thoroughness in explaining in medical condition and treatment	4.88	0.51	Highest
2. Practitioners educate about existing symptoms	4.79	0.47	Highest
3. Practitioner suggest on how to prevent the recurrence of symptoms	4.68	0.50	Highest
Total	4.78	0.34	Highest

According to table 12, the TCM customer in Thailand expressed the highest level of agreement ($\bar{X}$ = 4.78) on the improvement in care service aspect of TCM service quality. When examining individual aspects, the highest level of agreements was practitioner thoroughness in explaining in medical condition and treatment ($\bar{X}$ = 4.88), followed by practitioners educate about existing symptoms ($\bar{X}$ = 4.79), and practitioner suggest on how to prevent the recurrence of symptoms ($\bar{X}$ = 4.68) respectively.

Step 3 Determine the difference opinion on TCM service quality with various demographic

1) Gender

Table 13 t-test results for service quality of TCM customer in Thailand with different gender

Service quality	Male		Female		t	p-value
	$\bar{X}$	S.D.	$\bar{X}$	S.D.		
1. Empathy	4.68	0.33	4.73	0.29	-1.802	0.072
2. Tangible	4.66	0.28	4.68	0.29	-0.671	0.503
3. Safety	4.70	0.30	4.74	0.33	-1.366	0.173
4. Efficiency	4.66	0.43	4.76	0.34	1.238	0.217
5. Improvement in care service	4.76	0.34	4.80	0.34	-1.024	0.306
Total	4.69	0.23	4.71	0.21	-0.878	0.380

According to table 13, TCM customers of different genders show no significant difference in agreement on the service quality of TCM in Thailand, neither in the overall aspect nor individual aspects ($p>0.05$).

2) Age

Table 14 Comparison of the overall perspective of TCM service quality in Thailand across age group (ANOVA)

Service quality	Age	SS	df	MS	F	p-value
Overall	Between Groups	0.825	4	0.296	4.261	0.002**
	Within Groups	18.839	389	0.048		
	Total	19.665	393			

**Significance level at 0.01

According to Table 14, customers from different age groups exhibit a significant difference in their agreement on the service quality of TCM in Thailand ($p<0.01$). Therefore, analyze the pairwise comparisons.

Table 15 Comparison of the overall perspective of TCM service quality in Thailand by age group (LSD)

Service Quality		Below or equal to 30 years old	31-40 years old	41-50 years old	51-60 years old	Above 61 years old
Below or equal to 30 years old	$\bar{X}$	4.59	4.63	4.71	4.73	4.74
	4.59	-	0.039	0.120*	0.137*	0.144*
31-40 years old	4.63		-	0.081*	0.098*	0.106*
41-50 years old	4.71			-	0.017	0.024
51-60 years old	4.73				-	0.007
Above 61 years old	4.74					-

*Significance level at 0.05

According to table 15, a pairwise comparison conducted by using the post hoc LSD (Least Significant Difference) method, revealed six pairs with significant differences in customer opinions on TCM service quality.

The customer below or equal to 30 years old perceived service quality lower than the group of 41-50 years old, 51-60 years old, and above 61 years old. The customer between 31-40 years old perceived service quality lower than the group of 41-50 years old, 51-60 years old, and above 61 years old.

3) Educational level

Table 16 Comparison of the overall perspective of TCM service quality in Thailand across educational level (ANOVA)

Service quality	Educational level	SS	df	MS	F	p-value
Overall	Between Groups	0.314	2	0.157	3.174	0.043*
	Within Groups	19.351	391	0.049		
	Total	19.665	393			

*Significance level at 0.05

According to Table 16, customers from different educational levels exhibit a significant difference in their agreement on the service quality of TCM in Thailand ($p<0.05$). Therefore, analyze the pairwise comparisons.

Table 17 Comparison of the overall perspective of TCM service quality in Thailand by educational level (LSD)

Service Quality		Lower or equal to high school	Bachelor degree	Higher than bachelor degree
Lower or equal to high school	$\bar{X}$	4.74	4.70	4.65
	4.74	-	0.044	0.086*
Bachelor degree	4.70		-	0.042
Higher than bachelor degree	4.65			-

*Significance level at 0.05

According to table 17, the result illustrated that TCM customers with different levels of education have significantly different opinions about the overall service quality. The result identified one significant pairwise difference between customers with an education level, indicated that the customer with lower or equal to high school perceived service quality higher than a customer who has educational level higher than bachelor degree.

4) Income level

Table 18 Comparison of the overall perspective of TCM service quality in Thailand across income level (ANOVA)

Service quality	Income level	SS	df	MS	F	p-value
Overall	Between Groups	0.357	3	0.119	2.404	0.067
	Within Groups	19.308	390	0.050		
	Total	19.665	393			

According to table 18, TCM customer in Thailand with different income level had no different agreement about service quality in overall aspects ($p>0.05$).

5) Type of hospital visited

Table 19 Comparison of the overall perspective of TCM service quality in Thailand across different types of hospitals visited (ANOVA)

Service quality	Type of hospital visited	SS	df	MS	F	p-value
Overall	Between Groups	0.544	2	0.272	5.557	0.004**
	Within Groups	19.121	391	0.049		
	Total	19.665	393			

**Significance level at 0.01

According to Table 19, customers from different type of hospital visited exhibit a significant difference in their agreement on the service quality of TCM in Thailand ($p<0.01$). Therefore, analyze a pairwise comparison.

Table 20 Comparison of the overall perspective of TCM service quality in Thailand by different type of hospital visited (LSD)

Service Quality		Public hospital	Private hospital	Private clinic
Public hospital	$\bar{X}$	4.73	4.72	4.70
	4.73	-	0.004	0.080*
Private hospital	4.72		-	0.076*
Private clinic	4.70			-

*Significance level at 0.05

According to table 20, the result revealed that TCM customers with different type of hospital visited have significantly different opinions about the overall service quality. The result identified two significant pairwise difference. The first pair, customer visited public hospital perceived service quality higher than customer who visited a private clinic. The second pair, customer visited private hospital perceived service quality higher than customer who visited a private clinic.

Table 21 Comparison of the overall perspective of TCM service quality in Thailand across different purpose of service usage (ANOVA)

Service quality	Purpose of service usage	SS	df	MS	F	p-value
Overall	Between Groups	0.167	2	0.084	1.675	0.189
	Within Groups	19.498	391	0.050		
	Total	19.665	393			

According to table 21, TCM customer in Thailand with different purpose of service usage had no different agreement about service quality in overall aspects ($p>0.05$).

Step 4 Analyze the attribute of TCM service quality with the Kano model

Table 22 Kano model decision matrix

Attribute	M	O	A	I	R	Q	Category	CS	CD
Emp1	11	73	13	2	0	1	O	0.87	-0.85
Emp 2	15	44	25	8	1	7	O	0.75	-0.64
Emp 3	25	54	12	9	0	0	O	0.66	-0.79
Emp 4	14	39	27	20	0	0	O	0.66	-0.53
Tan 1	4	72	19	4	0	1	O	0.92	-0.77
Tan 2	15	48	24	12	1	0	O	0.73	-0.64
Tan 3	16	39	30	15	0	0	O	0.69	-0.55
Tan 4	23	39	20	17	0	1	O	0.60	-0.63
Tan 5	21	33	29	17	0	0	O	0.62	-0.54
Saf 1	4	73	19	2	0	2	O	0.94	-0.79
Saf 2	10	56	25	8	0	1	O	0.82	-0.67
Saf 3	12	37	32	18	0	1	O	0.70	-0.49
Saf 4	15	28	32	24	0	1	A	0.61	-0.43
Eff 1	9	67	12	5	2	5	O	0.85	-0.82
Eff 2	8	49	30	13	0	0	O	0.79	-0.57
Eff 3	13	39	32	14	0	2	O	0.72	-0.53
Eff 4	15	32	34	18	0	1	A	0.67	-0.47
Imp 1	4	67	24	2	1	2	O	0.94	-0.73
Imp 2	10	49	32	8	0	1	O	0.82	-0.60
Imp 3	14	37	32	16	0	1	O	0.70	-0.52

M = Must be, O = One-dimensional, A = Attractive, I = Indifferent, R = Reverse, Q = Questionable

CS = Coefficient of satisfaction, CD = Coefficient of dissatisfaction

According to table 22, the analysis of percentage frequency revealed that two attribute, which are, do not feel aching during treatment delivery (Saf4) and service procedures are convenient (Eff4), fall within the attractive category, while all other attributes are classified within the one-dimensional category. The attributes of TCM service quality that significantly enhance customer satisfaction including receiving TCM services from a registered TCM practitioner (Saf1) CS = 0.94, practitioner thoroughness in explaining medical condition and treatment (Imp1) CS = 0.94, and the aesthetically appealing and comfortable furnishing of the place (Tan1) CS = 0.92. Conversely, attributes that lead to the most dissatisfaction if absent are staff paying attention with empathic listening during taking medical history (Emp1) CD = -0.85, avoidance of unnecessary medication or treatment (Eff1) CD = -0.82, and staff being polite (Emp3) CD = -0.79.

The coefficient of satisfaction and coefficient of dissatisfaction values from table 22 are plotted on the A-Kano graph, as illustrated in the Figure 5 below.

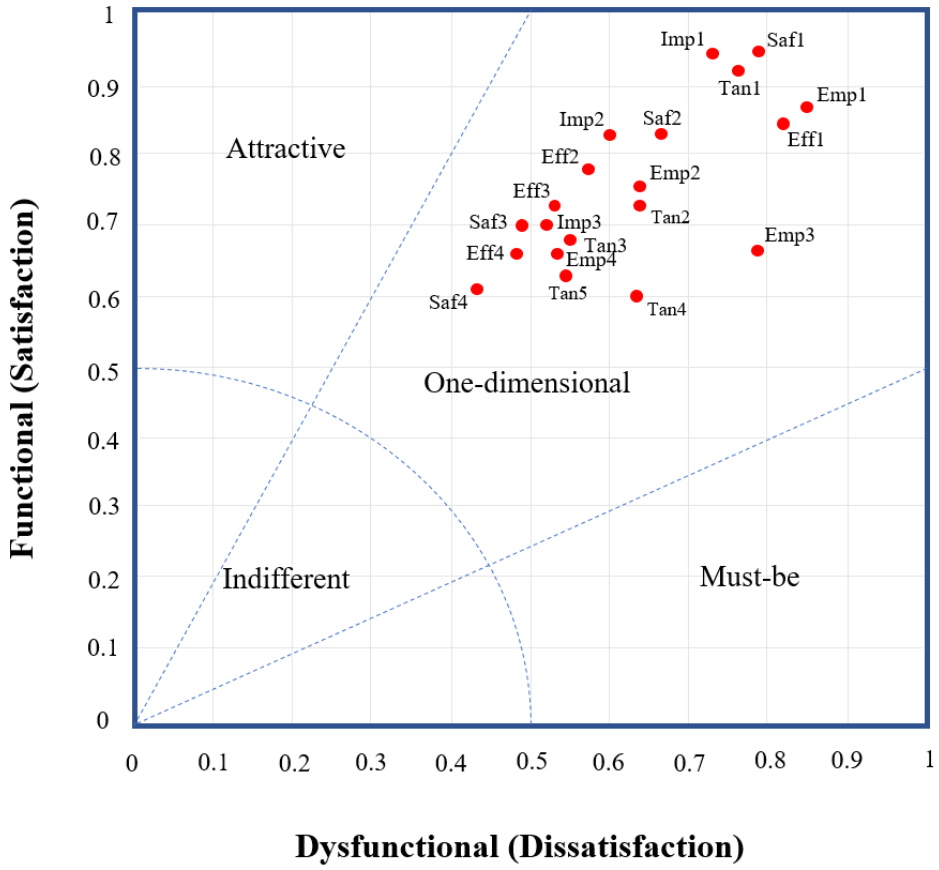


Figure 5 Service quality based on A-Kano model

According to Figure 5, all attributes of TCM service quality fall within the one-dimensional category, as indicated by the A-Kano model. Consequently, the results were compared with the traditional Kano categories to validate the findings.

Table 23 Comparison of service quality attribute between Kano and A-Kano

Attribute	Kano	A-Kano	Result
Emp1	O	O	O
Emp 2	O	O	O
Emp 3	O	O	O
Emp 4	O	O	O
Tan 1	O	O	O
Tan 2	O	O	O
Tan 3	O	O	O
Tan 4	O	O	O
Tan 5	O	O	O
Saf 1	O	O	O
Saf 2	O	O	O
Saf 3	O	O	O
Saf 4	A	O	O
Eff 1	O	O	O
Eff 2	O	O	O
Eff 3	O	O	O
Eff 4	A	O	O
Imp 1	O	O	O
Imp 2	O	O	O
Imp 3	O	O	O

M = Must be, O = One-dimensional, A = Attractive, I = Indifferent, R = Reverse, Q = Questionable

According to Table 23, the comparison of TCM service quality attributes using both the traditional Kano and A-Kano models reveals that most attributes fall within the same one-dimensional category. Except for Saf4 and Eff4, which are classified as attractive category. Therefore, when applying the rule M > O > A > I, all attributes are ultimately classified into the one-dimensional category.

Table 24 Summary of service quality attribute based on raking customer satisfaction index (CSI)

	Attribute	Category	CSI	Rank
Emp3	Staff being polite	O	1.20	1
Tan4	Advanced medical equipment is used	O	1.05	2
Emp1	Staff pay attention with empathic listening while taking medical history	O	0.98	3
Eff1	Avoidance of unnecessary medication or treatment	O	0.96	4
Tan2	Soft music is played during treatment	O	0.88	5
Tan5	Bedsheets are changed for each person	O	0.87	6
Emp2	Practitioner explains medical details using common terms	O	0.86	7
Saf1	Receiving TCM services from a registered TCM practitioner	O	0.84	8
Tan1	The place is furnished in an aesthetically appealing and comfortable	O	0.84	9
Saf2	Practitioner expresses confidence while treating	O	0.81	10
Emp4	Staff have sense of closeness and friendliness	O	0.80	11
Tan3	A cup of herbal tea is served after a treatment	O	0.80	12
Imp1	Practitioner is thorough in explaining medical condition and treatment	O	0.78	13
Imp3	Practitioner suggests methods to prevent the recurrence of symptoms	O	0.74	14
Eff3	Waiting time for service less than 15 minutes	O	0.73	15
Imp2	Practitioner educate about existing symptoms	O	0.73	16
Eff2	Call notification for appointment confirmation	O	0.72	17
Saf4	Do not feel aching during treatment delivery	O	0.72	18
Eff4	Service procedures are convenient	O	0.71	19
Saf3	Separate treatment room for male and female	O	0.71	20

According to table 24, the CSI values were calculated to determine the relative importance and satisfaction levels associated with each service quality attribute. The attributes are ranked based on the CSI scores, with higher scores indicating attributes that contribute significantly to customer satisfaction. The attributes with highest CSI score, exceeding 1, were staff being polite (Emp3), advanced medical equipment is used (Tan4), and followed by staff pay attention with empathic listening while taking medical history (Emp1) respectively.

Table 25 Empathy-related service quality attributes ranked by customer satisfaction index (CSI)

	Attribute	Category	CSI	Overall Ranking
Emp3	Staff being polite	O	1.20	1
Emp1	Staff pay attention with empathic listening while taking medical history	O	0.98	3
Emp2	Practitioner explains medical details using common terms	O	0.86	7
Emp4	Staff have sense of closeness and friendliness	O	0.80	11

According to table 25, the attributes were ranked within dimension based on the CSI scores, with higher scores indicating attributes that contribute significantly to customer satisfaction. The attributes with highest CSI score, were staff being polite (Emp3), followed by staff pay attention with empathic listening while taking medical history (Emp1).

Table 26 Tangible-related service quality attributes ranked by customer satisfaction index (CSI)

	Attribute	Category	CSI	Overall Ranking
Tan4	Advanced medical equipment is used	O	1.05	2
Tan2	Soft music is played during treatment	O	0.88	5
Tan5	Bedsheets are changed for each person	O	0.87	6
Tan1	The place is furnished in an aesthetically appealing and comfortable	O	0.84	9
Tan3	A cup of herbal tea is served after a treatment	O	0.80	12

According to table 26, the attributes were ranked within dimension based on the CSI scores, with higher scores indicating attributes that contribute significantly to customer satisfaction. The attributes with highest CSI score, were advanced medical equipment is used (Tan4), followed by soft music is played during treatment (Tan2)

Table 27 Safety-related service quality attributes ranked by customer satisfaction index (CSI)

	Attribute	Category	CSI	Overall Ranking
Saf1	Receiving TCM services from a registered TCM practitioner	O	0.84	8
Saf2	Practitioner expresses confidence while treating	O	0.81	10
Saf4	Do not feel aching during treatment delivery	O	0.72	18
Saf3	Separate treatment room for male and female	O	0.71	20

According to table 27, the attributes were ranked within dimension based on the CSI scores, with higher scores indicating attributes that contribute significantly to customer satisfaction. The attributes with highest CSI score, were Receiving TCM services from a registered TCM practitioner (Saf1), followed by practitioner expresses confidence while treating (Saf2)

Table 28 Efficiency-related service quality attributes ranked by customer satisfaction index (CSI)

	Attribute	Category	CSI	Overall Ranking
Eff1	Avoidance of unnecessary medication or treatment	O	0.96	4
Eff3	Waiting time for service less than 15 minutes	O	0.73	15
Eff2	Call notification for appointment confirmation	O	0.72	17
Eff4	Service procedures are convenient	O	0.71	19

According to table 28, the attributes were ranked within dimension based on the CSI scores, with higher scores indicating attributes that contribute significantly to customer satisfaction. The attributes with highest CSI score, were avoidance of unnecessary medication or treatment (Eff1), waiting time for service less than 15 minutes (Eff3).

Table 29 Efficiency-related service quality attributes ranked by customer satisfaction index (CSI)

	Attribute	Category	CSI	Overall Ranking
Imp1	Practitioner is thorough in explaining medical condition and treatment	O	0.78	13
Imp3	Practitioner suggests methods to prevent the recurrence of symptoms	O	0.74	14
Imp2	Practitioner educate about existing symptoms	O	0.73	16

According to table 29, the attributes were ranked within dimension based on the CSI scores, with higher scores indicating attributes that contribute significantly to customer satisfaction. The attributes with highest CSI score, practitioner is thorough in explaining medical condition and treatment (Imp1), Practitioner suggests methods to prevent the recurrence of symptoms (Imp3).

CHAPTER V

DISCUSSION AND CONCLUSION

This chapter presents a discussion of the findings related to the research topic. The discussion organized into the following sections.

1. Conclusions
2. Discussions
3. Implications
4. Recommendations

Conclusions

The purpose of this study was to explore the service quality of TCM in Thailand and its impact on customer satisfaction using the Kano model and the HEALTHQUAL approach. The study aimed to identify service quality attributes, understand customer perception and requirement across different demographic groups, and provide actionable recommendations for improving TCM services. Data were collected from 394 TCM customers via online-questionnaire through TCM-related social media platforms and analyzed using descriptive statistic, t-test, ANOVA and the Kano analysis method. This combined approach offers comprehensive insights into improving service quality and customer satisfaction, as the Kano model provides a qualitative framework while ANOVA offers a quantitative analysis.

The majority of respondents are females aged between 51 - 60 years old in which consistent with the finding of Shih et al. (2012) that the average of TCM use frequency was significantly higher in women than in men across all age groups. This study also found that educational attainment predominantly at the bachelor's degree level, with average monthly incomes ranging between 30,001 – 40,000 baht which also align with the findings of Zhao et al. (2023) that female and older patients, as

well as patients with a higher education level, urban residency, and higher family income, were found to be associated with a higher probability of using TCM for multiple conditions than their counterparts. TCM customers in Thailand expressed the highest level of agreement regarding overall service quality. Among the individual service aspects, the top three areas with the highest levels of agreement were improvement in care service, safety, and empathy, in order. The Summary of the hypotheses results are presented by following table 30, and further explained in the discussion section.

Table 30 The Summary of the hypotheses results

Hypotheses	Results	Conclusions
1. Demographic factors such as gender, age, educational level, income level perceives service quality of TCM of differently.	- Different age groups perceive service quality differently. -Different educational levels perceive service quality differently. - Different gender show no difference on perceived service quality -Different income levels show no difference on perceived service quality	Partially supported
2. Customer behavior such as types of hospital visited, and purpose of service usage perceive service quality of TCM differently.	- Customer visits to different types of hospital perceived service quality differently. - Customers with different purpose of service usage show no difference on perceived service quality.	Partially supported
3. Based on Kano model categories, TCM customers prioritize service quality differently.	- All the twenty attributes fell into one-dimensional category.	Rejected

Discussions

The study demonstrated that service quality, particularly, the improvement in care service, safety, and empathy aspects, play a crucial role in shaping customer satisfaction in TCM healthcare settings. Customers reported significantly higher satisfaction level when the attentiveness was visually appreciable, such as when the practitioner thoroughly explained the medical condition or pay attention with empathic listening. These findings suggest that service quality in terms of empathy is not merely supplementary but integral to the overall customer experience. For example, empathic communication, provides a calm environment and reduces stress for patient. This aligns with the study of Pun and others (2019) and Pun (2020), who reported that linguistic and communication skills enhance clinical outcomes such as customer satisfaction.

Nevertheless, the data analysis revealed differences in satisfaction levels across various demographic characteristics. Specifically, customers under 30 years old expressed the lowest perception of service quality compare to other age groups, thereby supporting the view of Strauss and Schoeman (2022) that age groups 18–25 years and 26–40 years perceived service quality as slightly lower than the older groups. Moreover, the finding aligns with the studied by Hulka and Wheat (1985) on utilization of healthcare services and is further supported by Andersen (1995), who identified factors influencing healthcare access and customer satisfaction under a concept of biological imperative, such as age-related the difference level of illness and gender specific symptom, which remarkably contributed to varying levels of customer satisfaction.

Regarding educational level, customers with lower literacy exhibited higher agreement on service quality of TCM. This finding consistent with the study of Jafari Kelarijani et al. (2014), on factors influencing patient satisfaction, found that higher educational attainment had lower patient satisfaction levels. This suggested that customer with limited health literacy may have lower expectations on treatment detailed explanation and concerned more with basic reliability. In contrast, the younger customers, aged below 30-40, who had grown up with technology, as well as

customer with higher literacy levels, placed a greater value on evidence-based practice or more detailed information about treatments. These groups were likely to expect more transparency, research-based explanations, and modern technological integration in service experience, as evidenced by the tendency to seek health information online (Lambert and Loiselle, 2007; Sinha and Serin, 2024). Interestingly, the studied of Palumbo et al. (2021) in a western setting found that the lower the respondents' health literacy skills, the poorer their self-efficacy perceptions and the smaller their awareness of health-related issues which performed as a barrier to health services' co-production, therefore reflected in low satisfaction on service quality. These various behavioral patterns underscored the importance for TCM providers to tailor their communication and service quality to meet the diverse needs, thereby enhancing the satisfaction.

The study revealed that gender and income levels were not significantly influenced customer satisfaction with TCM services in Thailand, therefore, the hypotheses rejected. However, the result was consistent with the research conducted by Jafari Kelarijani and others (2014), who found that patients with different gender did not show any distinction in perceived service quality, which aligned with Aagja and Garg (2010), who found that demographic factors such as gender and income did not markedly affect perceived service quality in public hospitals in India. Similarly, Al-Damen (2017) observed that patient satisfaction remained stable across different income groups. On the other hand, this finding contrasts with the research of Allahham (2013), who found that income level significantly affected customer-perceived value and satisfaction, driven by price satisfaction. This suggested that the intrinsic quality of healthcare services could mitigate the typical disparities influenced by socioeconomic status.

The study also revealed that TCM customers' perception of service quality was significantly different based on the type of hospital they visited in Thailand. Specifically, customers who had visited private clinics had distinct perceptions compared to those who had visited public hospital or private hospitals. The higher satisfaction observed in public hospital can be explained by several factors, including accessibility, affordability, and safety. This finding aligns with Shi et al. (2021),

which demonstrated that patients attending higher-tier hospitals (medical center with comprehensive medical care and provide high-level specialist care) reported higher satisfaction levels than those attending lower-tier hospitals, particularly across all SERVQUAL scale components. Public hospitals in Thailand are integrated into the national healthcare system, ensuring standardized practices and alignment with other medical systems. This integration enhances reliability and creates an environment where customer perceive care as consistent and trustworthy. Furthermore, public hospitals focus on efficiency, driven by government policies, guarantee service delivery that appeals to customer seeking cost-effective solutions (Aagja and Garg, 2010). In contrast, the private hospitals and clinics typically emphasize personalized care, shorter waiting times, and modern facilities, attracting patients who prioritize responsiveness and tangibles. However, the variability in service quality among private providers can influence customer perceptions, with some customer find private services less reliable due to the lack of uniform regulations compared to public organizations (Basu et al. , 2012).

Conversely, there were no notable differences in service quality perceptions based on the purpose of service usage, indicating consistent agreement on overall TCM service quality across various usage purposes. This finding aligns with Fan et al. (2017), who found that service quality perceptions did not differ significantly based on the medical department attended (e.g. internal medicine, surgery, pediatrics, etc.). This consistency suggests that TCM customers primarily focus on health outcomes rather than on luxury or premium service elements that might otherwise vary with income or gender-specific expectations (Chang and others 2013).

As for the integration of Kano model and A-Kano graph, findings strongly showed that all evaluated attributes of TCM service quality fell into the one-dimensional category, suggesting that each attribute influenced customer satisfaction and dissatisfaction in a linear manner. It should be mentioned that since the nature of TCM customers visit are health-focused (e.g. disease treatment, chronic pain, allergies, digestive disorders), it is possible that many of these service attributes align with one-dimensional requirements, where any improvement in these areas directly impacts customer satisfaction. This finding aligns with Wongrukmit and Thawesaengskulthai

(2014), who studied the service quality of inpatient departments across diverse cultural, including Myanmar, Arab, Japanese, and Thai patients, and found that nearly all service attributes consistently fell into the one-dimensional category across these group. Similarly, Vaez Shahrestani et al. (2020), in their revision of the Kano model, noted that one-dimensional attributes significantly influenced satisfaction or dissatisfaction based on how well they meet customer expectations, the more these needs are fulfilled, the greater customer satisfaction, and conversely, unfulfilled needs lead directly to dissatisfaction. This consistency underscores the linear, satisfaction-driven nature of one-dimensional attributes in healthcare services, especially in goal-oriented treatments like TCM.

All the identified attributes were classified under the One-Dimensional category, with two of these attributes exhibiting Customer Satisfaction Index (CSI) values exceeding 1. The first attribute, staff being polite (Emp3), emerged as a critical factor in customer satisfaction. This finding aligns with the study by (Mayasari and Kamal, 2024), which demonstrated that the use of polite and empathetic language fosters better understanding and support, reflecting the ethical and empathetic standards expected in healthcare interactions.

The second attribute, the use of advanced medical equipment (Tan4), is a highly visible and tangible feature that customers readily associate with service quality. This observation is consistent with the findings of Nemati and others (2020) and Roshnee Ramsaran-Fowdar (2008), which emphasized that medical technology enhanced perceptions of reliability and competence. Furthermore, this aligns with Maslow's hierarchy of needs (Maslow, 1943) , as it addresses both physiological needs (effective health solutions) and psychological needs (recognition and respect). Patients value advanced equipment not only for its functional benefits but also for the sense of esteem and belonging it provides, fulfilling higher-level needs in Maslow's framework. These attributes, while instrumental in driving customer satisfaction, also pose significant risks if unfulfilled, as their absence could lead to a pronounced dissatisfaction impact. Consequently, prioritizing these attributes in service quality improvement initiatives is essential to sustain high levels of customer satisfaction and mitigate potential dissatisfaction risks.

Lastly, the Kano model could be useful when service attributes are clearly defined. The more specific and detailed the attribute, the more practical and actionable the insights become for improving service quality. However, the Kano method was not underscored better than the utility-based rating method to measure customer satisfaction since each has its own pros and cons. Although the Kano model can help to understand customer requirements and customer satisfaction by categorized the service attributes based on their impact, it still has its critiques, such as the length and repetition of the questionnaire that show functional and dysfunctional form may lead to respondent fatigue and confusion. Moreover, the behavior of choosing choice on the most left, left-side bias, may affect the accuracy of responses.

Implications

1. Theoretical Implications

This study contributes to the literature by applying the Kano model to healthcare services quality in context of TCM, offering insights into how different service attributes affect customer satisfaction. It also expands the application of the HEALTHQUAL approach to a non-Western healthcare setting, specifically in a developing country like Thailand. The alignment between customer backgrounds and service expectations implies that customer satisfaction theories in healthcare should integrate a Hofstede's cultural dimensions and demographic to better predict and address customer satisfaction in diverse healthcare fields.

The use of Kano model in TCM, by showing that service quality attributes in this context are prominently one-dimensional. TCM customers appear to focus primarily on treatment outcomes rather than on added facilities or additional services. Additionally, a new quantitative method was proposed for assessing quality attributes, designed to accurately classify criteria and capture the nonlinear relationships between quality attributes and customer satisfaction.

Lastly, in the Kano model, attributes are categorized based on customer satisfaction, whereas this effect can vary based on customer attitudes. Integrating the Kano model with the KAP (Knowledge-Attitude-Practice) theory (Bandura, 1997) allows to gather insights into what information people know (knowledge), how they feel (attitudes), and how they behave (practices) regarding TCM. A service provider can better predict and influence customer satisfaction by aligning service quality attributes with customer knowledge and attitudes, thus ensuring that expectations match service outcomes effectively. This combined approach also emphasizes the importance of ongoing customer education in enhancing satisfaction with healthcare services.

2. Practical Implications

The study results underscore the importance of considering customer feedback, particularly when customers indicate the highest level of agreement across HEALTHQUAL dimensions. Findings reveal that customers place significant emphasis on specific service quality attributes, including improvement in care service and safety. In addition, empathy and tangibility rank highest as customer requirements according to the Kano model. This information provides a useful guideline for a TCM practitioner and entrepreneur in Thailand, highlighting areas where service improvements can enhance customer satisfaction.

The findings suggest that customers may experience dissatisfaction and consider switching healthcare providers or hospital if they encounter poor communication, inadequate manners from staffs or practitioners, or an uncomfortable environment. While it remains essential for practitioners to sharpen their medical knowledge and practical skills, the long-term sustainability of TCM businesses also rely on effective service quality. Several practical implications are listed below:

2.1 Enhance empathy and personalization: The empathetic interaction addresses primary customer satisfaction, integrated with a holistic personalized approach. Personalizing care by responding to customer need could build stronger practitioner-customer trust which is essential in TCM. This trusting environment make customer comfortable to share their concern, enabling the practitioner to gain deeper insight and therefore can easily tailor a treatment for each individual. This is

not only enhancing customer experience but also contributes to increased retention rate.

2.2 Improve the physical tangible aspect: tangibility is highly valued and easily assessed by customers, mainly in the initial stage of service. A well-maintained environment positively impacts customer perceptions of quality and comfort. Owner and executive could pay attention on physical space, such as organized treatment area, comfortable seating, and appropriate lighting.

2.3 Focus on care service and safety: integrating TCM and conventional medicine might facilitate promoting customer satisfaction. High standards of care service and safety are fundamental in increasing trust and relieving customer concern, directly increasing customer satisfaction. Ensuring safety in TCM, apart from hygiene protocols such as regular sterilization of equipment or proper waste disposal. The roles of TCM practitioners are also critical in building trust from patients who are unfamiliar with TCM practices.

2.4 Strengthen communication and professional conduct: Effective and respectful communication prevents misunderstandings, reduces customer dissatisfaction, and contributes to a more positive patient experience. Clear communication ensures customers fully comprehend their treatment plans, the rationale behind specific therapies, and any outcomes or side effects.

Recommendations

1. Recommendations for Practices

1.1 Staff politeness is a fundamental expectation within healthcare services, directly influencing patient trust, reducing anxiety, and enhancing perceptions of service quality. To ensure consistent delivery of respectful and professional behavior, it is recommended to implement structured training programs that focus on developing soft skills such as effective communication, cultural competence, and maintaining a professional demeanor

1.2 The integration of modern medical equipment alongside traditional methods is essential for enhancing the overall quality of TCM services. Investment in

advanced diagnostic and treatment technologies can significantly improve diagnostic precision, optimize treatment outcomes, and strengthen patient confidence in the care provided.

1.3 The practice of empathic listening during medical history taking is critical to the patient-centered approach. Healthcare staff should be trained in active listening techniques, including maintaining appropriate eye contact, refraining from interruptions, and summarizing patient concerns to ensure accurate understanding. These methods foster trust and create an environment where patients feel valued and heard.

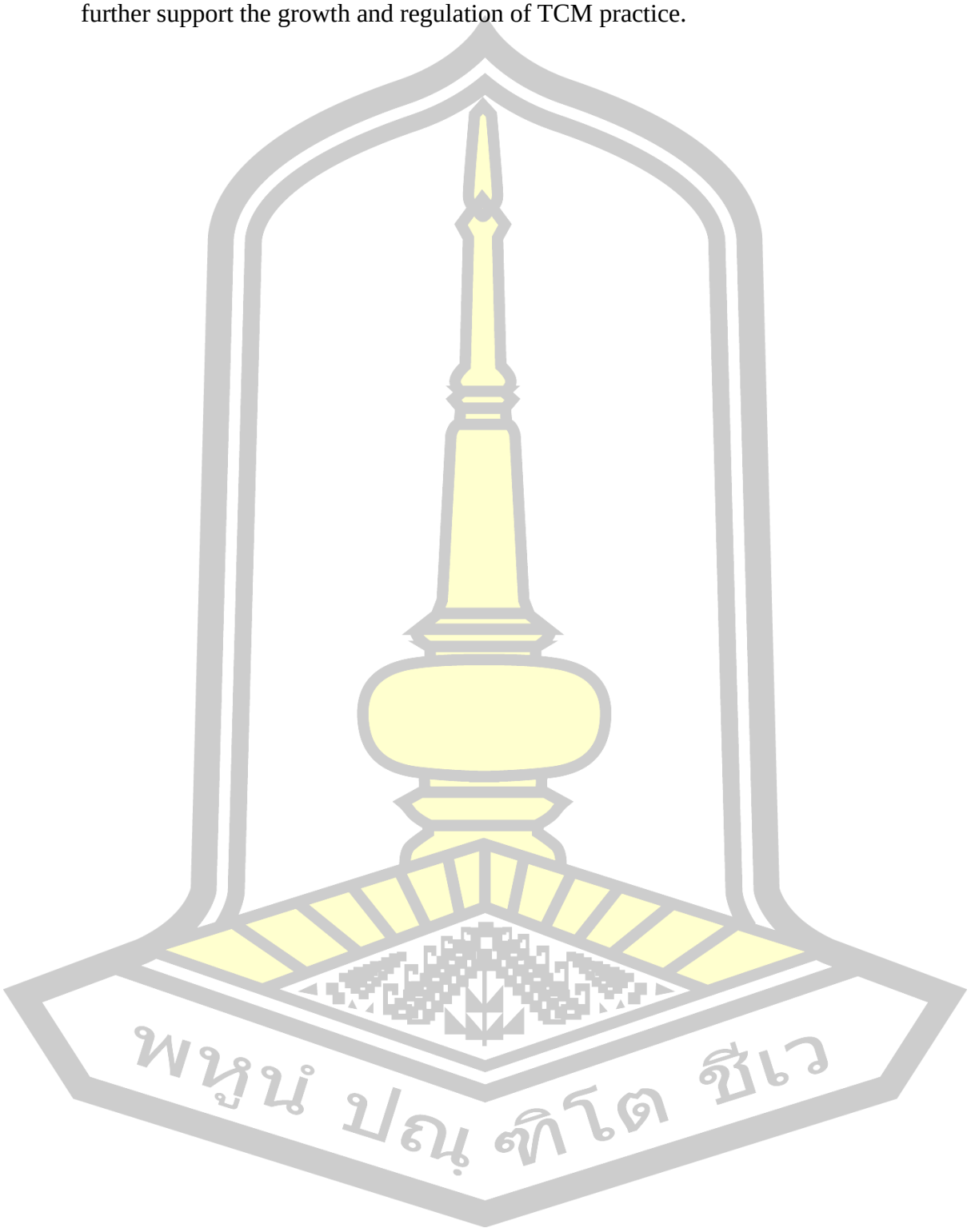
2. Recommendation for future research

2.1 This study, was focused exclusively on the perspective of TCM healthcare customers, resulting in service quality characteristics that may be simple and less technically complex. Future research could benefit from incorporating the viewpoint of healthcare providers, to explore how these different perspectives on service encounters align or diverge. Further could study in other wellness industry such aesthetic and spa.

2.2 This study developed the attributes of service quality through a literature review, using HEALTHQUAL model as the primary framework, which derived from well-recognized SERVQUAL model. For potential future research, introducing additional healthcare service quality models could provide an improved comprehension of the diverse factors that influence service quality in TCM context. Moreover, the methodological expansion, development of the attributes by integrating qualitative methods, such as customer surveys or in-depth interviews. Listening to the voice of the customer can help to identify their genuine requirements, understanding the unspoken and latent needs that are often disguised, would allow to the development of service quality attributes.

2.3 Future research could investigate the challenges, obstacles, and successes in the provision of TCM services. Such insights would be useful in identifying significant issues where service quality could be improved. Enable the

government and policymakers to support and implement evidence-based policies that further support the growth and regulation of TCM practice.



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APPENDICES

APPENDIX A

Cover Letter and Questionnaire: Thai Version

แบบสอบถามเพื่อการวิจัย

เรื่อง “คุณภาพการให้บริการการแพทย์แผนจีนโดยแบบจำลองคาโน ในมุมมองของผู้รับบริการ”

คำชี้แจง

1. แบบสอบถามฉบับนี้ มีจุดประสงค์เพื่อศึกษาความพึงพอใจต่อคุณภาพการบริการการแพทย์แผนจีน โดยใช้เวลาไม่เกิน 10 นาที คำตอบของท่านมีความสำคัญอย่างยิ่งต่อการวิเคราะห์ข้อมูลที่ใช้ในการวิจัย กรุณาตอบข้อมูลให้ครบถ้วนทุกข้อ ทุกตอน เพื่อให้การวิจัยในครั้งนี้มีความเที่ยงตรงและเกิดประโยชน์อย่างแท้จริง

2. ท่านได้ใช้บริการการแพทย์แผนจีนภายในระยะเวลา 1 ปีนี้หรือไม่

☐ ใช่ ☐ ไม่ใช่

หากคำตอบคือ “ไม่ใช่” หมายถึงสิ้นสุดการทำแบบสอบถาม

3. ข้อมูลของท่านจะถูกเก็บไว้เป็นความลับ การนำเสนอผลงานวิจัยจะนำเสนอในภาพรวมเท่านั้น

4. แบบสอบถามฉบับนี้แบ่งออกเป็น 2 ตอน

ตอนที่ 1 ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม จำนวน 7 ข้อ

ตอนที่ 2 ความคิดเห็นเกี่ยวกับความพึงพอใจต่อคุณภาพการบริการ จำนวน 20 คู่ หรือ 40 ข้อ ซึ่งเป็นคำถามเชิงบวกและคำถามเชิงลบ

5. ขอขอบคุณท่านที่ได้สละเวลาในการให้ข้อมูลที่เป็นประโยชน์อย่างยิ่งต่อการวิจัยในครั้งนี้ หากท่านมีข้อสงสัยประการใด โปรดติดต่อผู้วิจัย นางสาวปาลิตา ปรีชาเดชเจริญ โทรศัพท์: 086-9999127 E-Mail: palitapcr@gmail.com

ขอขอบพระคุณสำหรับการให้ข้อมูลไว้ ณ โอกาสนี้

นางสาวปาลิตา ปรีชาเดชเจริญ
นิสิตปริญญาโท หลักสูตรบริหารธุรกิจมหาบัณฑิต
คณะการบัญชีและการจัดการ มหาวิทยาลัยมหาสารคาม

ตอนที่ 1 ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม

คำชี้แจง โปรดทำเครื่องหมาย √ ลงในช่อง ☐ ด้านล่างหน้าข้อความ ที่เป็นจริงและตรงกับความคิดเห็นของท่านมากที่สุด

1. เพศ

☐ ชาย ☐ หญิง

2. อายุ

☐ น้อยกว่าหรือเท่ากับ 30 ปี ☐ 31 - 40 ปี
☐ 41 - 50 ปี ☐ 51 - 60 ปี
☐ 61 ปี ขึ้นไป

3. ระดับการศึกษา

☐ ต่ำกว่าหรือเทียบเท่ามัธยมศึกษาตอนปลาย ☐ ปริญญาตรี หรือเทียบเท่า
☐ สูงกว่าปริญญาตรี

4. รายได้เฉลี่ยต่อเดือน

☐ น้อยกว่าหรือเท่ากับ 20,000 บาท ☐ 20,001 - 30,000 บาท
☐ 30,001 - 40,000 บาท ☐ 40,001 บาท ขึ้นไป

5. ประเภทสถานพยาบาลที่ใช้บริการ

☐ โรงพยาบาลรัฐบาล ☐ โรงพยาบาลเอกชน
☐ คลินิกเอกชน

6. วัตถุประสงค์หลักในการใช้บริการ

☐ เพื่อการรักษาและฟื้นฟูสมรรถภาพร่างกาย ☐ เพื่อสุขภาพและความงาม
☐ เพื่อปรับสมดุลร่างกาย

7. ความถี่ในการใช้บริการภายในระยะเวลา 1 ปี

☐ น้อยกว่าหรือเท่ากับ 10 ครั้ง ☐ 11 - 20 ครั้ง
☐ 21 ครั้งขึ้นไป

ตอนที่ 2 ความคิดเห็นเกี่ยวกับความพึงพอใจต่อคุณภาพการบริการ

คำชี้แจง : ให้ท่านประเมินความพึงพอใจของท่าน จากคุณลักษณะการบริการดังต่อไปนี้ โดยทำเครื่องหมาย √ ลงในช่อง ☐ ที่ตรงกับความคิดเห็นของท่านมากที่สุด

คุณภาพการบริการ	ระดับความคิดเห็น				
	ชอบ (5)	ควรจะเป็นเช่นนั้น (4)	เฉยๆ (3)	พอรับได้ (2)	ไม่ชอบ (1)
ด้านความเอาใจใส่ (Empathy)					
1. เจ้าหน้าที่ให้ความสนใจโดยการรับฟังอย่างเข้าอกเข้าใจขณะซักประวัติ					
2. แพทย์อธิบายรายละเอียดของอาการด้วยคำศัพท์ทั่วไปที่เข้าใจง่าย					
3. เจ้าหน้าที่มีความสุภาพ					
4. เจ้าหน้าที่มีอัธยาศัยและเป็นมิตร					
5. เจ้าหน้าที่**ไม่ให้**ความสนใจโดยการรับฟังอย่างเข้าอกเข้าใจขณะซักประวัติ					
6. แพทย์**ไม่**อธิบายรายละเอียดของอาการด้วยคำศัพท์ทั่วไปที่เข้าใจง่าย					
7. เจ้าหน้าที่**ไม่มี**ความสุภาพ					
8. เจ้าหน้าที่**ไม่มี**อัธยาศัยและเป็นมิตร					

คุณภาพการบริการ	ระดับความคิดเห็น				
	ชอบ (5)	ควรจะเป็นเช่นนั้น (4)	เฉยๆ (3)	พอรับได้ (2)	ไม่ชอบ (1)
ด้านความเป็นรูปธรรม (Tangible)					
9. สถานที่ตกแต่งอย่างสวยงามและสะดวกสบาย					
10. ดนตรีเบาๆเปิดขณะรับการรักษา					
11. บริการน้ำสมุนไพรหลังการรักษา					
12. ใช้อุปกรณ์ทางการแพทย์ที่ทันสมัย					
13. เปลี่ยนผ้าปูเตียงใหม่สำหรับแต่ละบุคคล					
14. **ไม่**ตกแต่งสถานที่อย่างสวยงามและสะดวกสบาย					
15. **ไม่มี**ดนตรีเบาๆเปิดขณะรับการรักษา					
16. **ไม่มี**บริการน้ำสมุนไพรหลังการรักษา					
17. **ไม่**ใช้อุปกรณ์ทางทางการแพทย์ที่ทันสมัย					
18. **ไม่**เปลี่ยนผ้าปูเตียงใหม่สำหรับแต่ละบุคคล					
ด้านความปลอดภัย (Safety)					
19. ได้รับการบริการโดยแพทย์ที่มีใบประกอบวิชาชีพสาขาแพทย์แผนจีน					
20. แพทย์แสดงออกถึงความมั่นใจขณะรักษา					
21. แยกห้องหัตถการสำหรับชายและหญิง					

คุณภาพการบริการ	ระดับความคิดเห็น				
	ชอบ (5)	ควรจะเป็นเช่นนั้น (4)	เฉยๆ (3)	พอรับได้ (2)	ไม่ชอบ (1)
ด้านความปลอดภัย (Safety)					
22. ไม่รู้สึกเจ็บขณะรับการักษา					
23. **ไม่**ได้รับการบริการโดยแพทย์ที่มีใบประกอบวิชาชีพสาขาแพทย์แผนจีน					
24. แพทย์**ไม่**แสดงออกถึงความมั่นใจขณะรักษา					
25. **ไม่**แยกห้องหัตถการสำหรับชายและหญิง					
26. **รู้สึกเจ็บ**ขณะรับการรักษา					
ด้านการมีประสิทธิภาพ (Efficiency)					
27. แพทย์หลีกเลี่ยงการรักษาที่ไม่จำเป็น					
28. มีการโทรแจ้งเตือนเวลานัดหมาย					
29. ระยะเวลาในการรอคิวเข้ารับบริการน้อยกว่า 15 นาที					
30. ขั้นตอนการรับบริการมีความสะดวก					
31. แพทย์**ไม่**หลีกเลี่ยงการรักษาที่ไม่จำเป็น					
32. **ไม่มี**การโทรแจ้งเตือนเวลานัดหมาย					
33. ระยะเวลาการรอคิวเข้ารับบริการ**นานกว่า** 15 นาที					
34. ขั้นตอนในการรับบริการ**ไม่**สะดวก					

คุณภาพการบริการ	ระดับความคิดเห็น				
	ชอบ (5)	ควรจะเป็นเช่นนั้น (4)	เฉยๆ (3)	พอรับได้ (2)	ไม่ชอบ (1)
ด้านการพัฒนาการดูแลสุขภาพ (Improvement in care service)					
35. แพทย์อธิบายอาการและการรักษาอย่างครอบคลุม					
36. แพทย์ให้ความรู้เกี่ยวกับอาการที่เป็นอยู่					
37. แพทย์แนะนำแนวทางการปฏิบัติตัวเพื่อป้องกันการเกิดอาการซ้ำ					
38. แพทย์อธิบายอาการและการรักษา**ไม่**ครอบคลุม					
39. แพทย์**ไม่**ให้ความรู้เกี่ยวกับอาการที่เป็นอยู่					
40. แพทย์**ไม่**แนะนำแนวทางการปฏิบัติตัวเพื่อป้องกันการเกิดอาการซ้ำ					

APPENDIX B

Cover Letter and Questionnaire: English Version

Questionnaire Survey of a Research Study

Title “Service Quality of Traditional Chinese Medicine using Kano Model in Healthcare Customer Perspective”

Directions:

1. The purpose of this questionnaire is to study the opinions and levels of satisfaction with the use of Traditional Chinese Medicine services. Take about 10 minutes and please answer all questions and every section to ensure that this research is accurate and truly useful.

2. Have you received TCM service within one year?

☐ Yes ☐ No

If the answer is "No," it means the questionnaire has ended.

3. Your answers to all question is essential for the data analysis and the completion of this research study.

4. The questionnaire is divided into 2 sections:

Section 1 Questions about general information of the informant.

Section 2 Question about customer satisfaction on the service quality. Consist 20 pairs of question in functional and dysfunctional form.

5. Thank you for taking the time to provide such useful information to this research. If you have any questions, please contact the researcher Ms. Palita Preechadechcharern Tel: 086-9999127 E-Mail: palitapcr@gmail.com

Thank you for the information,

Palita Preechadechcharern
Master Student of Business Administration
Mahasarakham University, Thailand

Section 1 Questions about general information of the informant

Direction Please check ✓ into ☐ on the item that shows the most likely you

1. Gender

☐ Male ☐ Female

2. Age

☐ Below or equal to 30 years old ☐ 31 - 40 years old

☐ 41 - 50 years old ☐ 51 - 60 years old

☐ Above 61 years old

3. Educational level

☐ Lower or equal to High School ☐ Bachelor Degrees

☐ Higher than Bachelor Degrees

4. Average income per month

☐ Less than or equal to 20,000 Baht ☐ 20,001-30,000 Baht

☐ 30,001 - 40,000 Baht ☐ More than 40,001 Baht

5. Types of hospital visited

☐ Public Hospital ☐ Private Hospital ☐ Private Clinic

6. Purpose of Service Usage

☐ Treatment and Rehabilitation ☐ Health and Beauty

☐ Body Harmony

7. Service Frequency within 1 year

☐ Less than or equal to 10 times ☐ 11-20 times

☐ More than 21 times

Section 2 Question about customer satisfaction on the service quality

Direction please check (✓) only one in the ☐ box of five scales to express the level of your agreement to the statement below. Where 5 = I like it that way, 4 = It must be that way, 3 = I am neutral, 2 = I can live with it that way, and 1 = I dislike it that way

Service Quality	Opinion Level				
	Like (5)	Must Be (4)	Neutral (3)	Live with (2)	Dislike (1)
Empathy					
1. Staff pay attention with empathic listening while taking medical history					
2. Practitioner explains medical details using common terms					
3. Staff being polite					
4. Staff have sense of closeness and friendliness					
5. Staff **do not** pay attention with empathic listening while taking medical history					
6. Practitioner **does not** explain medical details using common terms					
7. Staff **are not** polite					
8. Staff **do not** have sense of closeness and friendliness					

Service Quality	Opinion Level				
	Like (5)	Must Be (4)	Neutral (3)	Live with (2)	Dislike (1)
Tangible					
9. The place is furnished in an aesthetically appealing and comfortable					
10. Soft music is played during treatment					
11. A cup of herbal tea is served after a treatment					
12. Advanced medical equipment is used					
13. Bedsheets are changed for each person					
14. The place **is not** furnished in an aesthetically appealing and comfortable					
15. Soft music **is not** played during treatment.					
16. A cup of herbal tea **is not** served after a treatment					
17. Advanced medical equipment **is not** used					
18. Bedsheets **are not** changed for each person.					
Safety					
19. Receiving TCM services from a registered TCM practitioner					
20. Practitioner expresses confidence while treating					

Service Quality	Opinion Level				
	Like (5)	Must Be (4)	Neutral (3)	Live with (2)	Dislike (1)
Safety					
21. Separate treatment room for male and female					
22. Do not feel aching during treatment delivery					
23. **Not** receiving TCM services from a registered TCM practitioner					
24. Practitioner **does not** express confidence while treating					
25. **No** separate treatment room for male and female					
26. **feel aching** during treatment delivery					
Efficiency					
27. Avoidance of unnecessary medication or treatment					
28. Call notification for appointment confirmation					
29. Waiting time for service less than 15 minutes					
30. Service procedures are convenient					

Service Quality	Opinion Level				
	Like (5)	Must Be (4)	Neutral (3)	Live with (2)	Dislike (1)
Efficiency					
31. **Not** avoiding unnecessary medication or treatment					
32. **No** call notification for appointment confirmation					
33. Waiting time for service **more than** 15 minutes					
34. Service procedures **are not** convenient					
Improvement in care services					
35. Practitioner is thorough in explaining medical condition and treatment					
36. Practitioner educate about existing symptoms					
37. Practitioner suggests methods to prevent the recurrence of symptoms					
38. Practitioner **is not** thorough in explaining medical condition and treatment.					
39. Practitioner **does not** educate about existing symptoms					
40. Practitioner **does not** suggest methods to prevent the recurrence of symptoms.					

APPENDIX C

Instrument Quality

Table 31 Content validity Item-Objective Congruence (IOC)

Items	Expert's opinion			Total	IOC	Result
	1	2	3			
1. Empathy						
1	+1	+1	+1	3	1.00	Pass
2	+1	+1	+1	3	1.00	Pass
3	+1	+1	+1	3	1.00	Pass
4	+1	+1	+1	3	1.00	Pass
2.Tangible						
1	+1	+1	+1	3	1.00	Pass
2	+1	+1	+1	3	1.00	Pass
3	+1	+1	+1	3	1.00	Pass
4	+1	+1	+1	3	1.00	Pass
5	+1	+1	+1	3	1.00	Pass
3.Safety						
1	+1	+1	+1	3	1.00	Pass
2	+1	+1	+1	3	1.00	Pass
3	+1	+1	+1	3	1.00	Pass
4	+1	+1	+1	3	1.00	Pass
4. Efficiency						
1	+1	+1	+1	3	1.00	Pass
2	+1	+1	+1	3	1.00	Pass
3	+1	+1	+1	3	1.00	Pass
4	+1	+1	+1	3	1.00	Pass
5. Improvement in care service						
1	+1	+1	+1	3	1.00	Pass
2	+1	+1	+1	3	1.00	Pass
3	+1	+1	+1	3	1.00	Pass

Table 32 Items Factor Loadings and Reliability Analyses

Variable component (Items)	Factor Loading	Cronbach's Alpha if Items Delete
1. Empathy		
1	0.564	0.767
2	0.695	0.770
3	0.809	0.773
4	0.507	0.774
2.Tangible		
1	0.712	0.771
2	0.526	0.766
3	0.674	0.763
4	0.514	0.771
5	0.676	0.768
3.Safety		
1	0.617	0.769
2	0.559	0.769
3	0.575	0.765
4	0.719	0.767
4. Efficiency		
1	0.601	0.770
2	0.751	0.766
3	0.734	0.765
4	0.657	
5. Improvement in care service		
1	0.705	0.768
2	0.845	0.768
3	0.789	0.768

APPENDIX D

Ethical Consideration

คณะกรรมการจริยธรรมการวิจัยในคน มหาวิทยาลัยมหาสารคาม

เอกสารรับรองโครงการวิจัย

เลขที่การรับรอง : 154-101/2567

ชื่อโครงการวิจัย (ภาษาไทย) คุณภาพการให้บริการแพทย์แผนจีนโดยใช้แบบจำลองคาโน ในมุมมองของผู้รับบริการ

ชื่อโครงการวิจัย (ภาษาอังกฤษ) Service Quality of Traditional Chinese Medicine using the Kano Model in Healthcare Customer Perspective.

ผู้วิจัย : นางสาวปาลิตา ปรีชาเดชเจริญ
หน่วยงานที่รับผิดชอบ : คณะการบัญชีและการจัดการ
สถานที่ทำการวิจัย : คณะการบัญชีและการจัดการ มหาวิทยาลัยมหาสารคาม

ประเภทการพิจารณาแบบ : แบบเร่งรัด

วันที่รับรอง : 20 มีนาคม 2567 **วันหมดอายุ** : 19 มีนาคม 2568

ข้อเสนอการวิจัยนี้ ได้รับการพิจารณาและให้ความเห็นชอบจากคณะกรรมการจริยธรรมการวิจัยในคน มหาวิทยาลัยมหาสารคามแล้ว และอนุมัติในด้านจริยธรรมให้ดำเนินการศึกษาวิจัยเรื่องข้างต้นได้ บนพื้นฐานของโครงร่างงานวิจัยที่คณะกรรมการฯ ได้รับและพิจารณา เมื่อเสร็จสิ้นโครงการแล้วให้ผู้วิจัยส่งแบบฟอร์มการปิดโครงการและรายงานผลการดำเนินงานมายังคณะกรรมการจริยธรรมการวิจัยในคน มหาวิทยาลัยมหาสารคาม หรือหากมีการเปลี่ยนแปลงใดๆ ในโครงการวิจัย ผู้วิจัยจักต้องยื่นขอรับการพิจารณาใหม่

(ผู้ช่วยศาสตราจารย์ เภสัชกรหญิงราตรี สว่างจิตร)
ประธานคณะกรรมการจริยธรรมการวิจัยในคน
มหาวิทยาลัยมหาสารคาม

ทั้งนี้ การรับรองนี้มีเงื่อนไขดังที่ระบุไว้ด้านหลังทุกข้อ (ดูด้านหลังของเอกสารรับรองโครงการวิจัย)

BIOGRAPHY

NAME	PALITA PREECHADECHCHARERN
DATE OF BIRTH	22 MARCH 1994
PLACE OF BIRTH	BANGKOK, THAILAND
ADDRESS	Khamriang Subdistrict, Kantharawichai District, Maha Sarakham, 44150
POSITION	TCM Practitioner
PLACE OF WORK	2023 - Present : Preecha Wellness Clinic 2017 - 2022 : Thai Traditional Medicine and Alternative Medicine Department, Roi-et Hospital
EDUCATION	2016: Bachelor of Traditional Chinese Medicine, Beijing University of Chinese Medicine, China 2010: Secondary School, St. John's International Residential School, India